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THE OSAGE ORANGE FOR HEDGES.

THE Osage orange (*Maclura aurantiaca*), known also, by the names of "Osage apple," "bow wood," and *bois d'arc*, is indigenous to Arkansas, Texas, and Upper Missouri, and may be safely cultivated for hedges or ornament wherever the Isabella grape vine will thrive and mature its fruit in open air. In its natural habitat, the Osage orange forms a beautiful, deciduous-leaved tree, often growing to a height of 25 to 30 feet, with a trunk from 12 to 18 inches in diameter; and in very favorable situations, it sometimes attains double these dimensions. The general appearance of this tree greatly resembles that of the common orange; and when we view the beauty and splendor of its dark, shining foliage, large, golden fruit, and the numerous, sharp spines, which the branches present, we are strongly impressed by the comparison. The juice of the young wood, leaves, and fruit, consists of a milky fluid, of an acid or insipid taste, which soon dries, on exposure to the air, and contains a considerable proportion of an elastic gum. The fruit, however, in open culture, does not ripen its seeds north of Philadelphia.

The most important use to which the Osage orange can be applied, is, for the formation of hedges; and there is no plant, in our estimation, better adapted for this purpose, in any part of the country, where this tree will thrive. Apprehensions have been expressed, by some, that, from its rapid growth, it will soon become too large for live hedges, which, it is thought will not endure for a great length of time. This, however, remains yet to be proved. We have no doubt, in our own minds, that, if a judicious system be pursued, in trimming and heading down, they will serve an excellent purpose for twenty, and perhaps thirty years; for there are hedges of this plant in the vicinity of Cincinnati, which are ten years old, and

have thus far proved perfectly hardy, very uniform, neat, and handsome in their appearance, and free from the attacks of insects or disease.

The Osage orange may readily be propagated by seeds, from which it will grow sufficiently large in three years to form a hedge. It succeeds best on land moderately rich, such, for instance, as will produce good Indian corn; but it will grow in almost any soil that is not too moist. The line of ground, intended for a hedge, should first be dug and well pulverized, say from 12 to 15 inches deep, and 2 feet wide, along the centre of which the plants may be set at a distance of one foot apart.

The seeds, before sowing, should be soaked in water, in a warm room, for four or five days; or they may be mixed with equal parts, by measure, of sand, and exposed a few weeks, in open boxes, to wintry weather, on the sunny side of a building, in order to freeze and thaw. It is preferable to sow them early in the spring, in a garden or nursery, where they will shortly germinate and form young plants. These should carefully be weeded or hoed during the first season's growth, and transplanted in the hedge line in the month of March or April of the following year.

CULTIVATION OF ONIONS.—No. 1.

As the common onion (*Allium cepa*), forms one of the principal crops of the kitchen garden and is somewhat extensively cultivated in the field for the supply of our home markets, as well as those of the West Indies and elsewhere, it is important to know what kinds are most profitable to raise, their adaptation to particular markets, and the best modes of cultivation. For it is a well-established fact, that its mild or strong qualities depend more on climate and cultivation than to any inherent property of the onion itself; as those grown in Spain, Portugal, Madeira, Teneriffe, &c., are more benignant in their

nature than those cultivated either in the northern parts of Europe or of the United States.

Furthermore, the inhabitants of warmer climates, as in the tropics, who generally require their meats and soups highly seasoned, prefer onions of the strongest flavor; while those of the more temperate and colder regions, who more frequently eat them served up with melted butter or white sauce, seek the opposite property, mild and sweet. Hence the importance of selecting varieties for cultivation, that are best suited for any particular market or use.

Varieties—There are a multitude of varieties or sorts of onions in cultivation, among which, the following are recommended:—

1. *Blood-Red Strasburg*, or *Weathersfield*, a very hardy variety, of medium size, inclining to flat, valued for its long keeping and strong flavor. It is extensively cultivated in the eastern states for export to the West Indies and elsewhere.

2. *Large Yellow Strasburg*, of an oval form, inclining to flat, and of a strong flavor. It is hardy, productive, and keeps well, on which account it is highly prized.

3. *Silver-Skinned*, or *New England White*, a flat variety, of medium size, esteemed for its delicate flavor, and is much used for pickling. This onion usually sells in the New York markets for prices one fourth higher than any other variety.

4. *White Spanish*, *Portugal*, or *Lisbon*—very large, globular in form, mild in flavor, but will not keep well beyond the end of autumn or early winter.

There are several other kinds of onions more or less cultivated, but none of them, in point of profit, will excel those described above.

The Welsh onion (*Allium fistulosum*), is said to be a native of Siberia, and is most hardy in its nature. This species is a perennial, forming little or no bulb, dying down to the root, in winter, and putting forth new stalks every spring; whereas, all other cultivated sorts never endure beyond the summer of the second year. The Welsh onion is usually propagated by seeds, sown in September, and when grown, are used as a salad early the next spring.

The potato, or under-ground onion (*Allium tuberosum*), which produces no seeds in a cultivated state, is a most hardy, prolific species, very mild in its quality, and possesses the advantage of perfectly ripening its roots several weeks earlier than any other kind. It is propagated by planting the bulbs, in March or April, in rows eighteen inches apart, three inches below the surface, and six inches asunder, from bulb to bulb. The plants may be weeded and earthed up, as with potatoes, as they continue to grow; and, in the course of the summer, a quantity of new bulbs will be formed on each parent root, which may be used like those of the common kinds.

The tree, or bulb-topped onion (*Allium proliferum*), is said to have originated in Canada, where the climate is too cold for onions to flower and seed. The root, or bulb, when planted in the ground, throws up a stalk similar to that of the common onion the second season of its growth; but, instead of bearing seeds, it produces numerous small bulbs, in or among the umbel of flowers, which, if planted in the spring, will increase in size, and form toler-

ably good onions, while the stalk supplies a succession of bulbs for the next year's planting.

General Culture.—The soil most congenial to the growth of the onion, in general, is a deep, mellow loam, resting on a dry bottom; and however rich it may be, it requires more or less manure for every crop. Although this vegetable is an exception in the rotation of crops, and the same ground has been known annually to produce abundantly for forty or fifty years, it is deemed preferable, in cropping the kitchen garden, to succeed celery, as the soil in that state is thoroughly pulverized, and usually contains a considerable quantity of unspent manure. But even in this case, it is necessary to add a liberal coat of the best fermented dung.

Previous to sowing, the ground should be well prepared by digging or plowing, and afterwards thoroughly levelled with a harrow or rake. A liberal dressing of very old barn-yard, or pig-sty manure, should then be slightly worked in, and the ground raked even and compressed by a roller, or patted with a hoe; for, experience has shown, that the more the onion grows above the surface, the finer and better it will keep. The earlier this work is done in the spring, the better it will be for the crop; and in no case should the sowing be delayed beyond the middle of April or the first of May.

The ground being thus prepared, may next be divided into beds four feet wide, with one-foot alleys between, for garden culture, and then marked off in shallow drills, from seven to twelve inches apart, into which the seed may be thinly sown (say, half an inch apart), and firmly trodden in with the foot. Next, a small quantity of fine earth, from the alleys, may be sprinkled over the seed, and finally evened with a coarse-toothed rake. For field culture, where many acres are to be seeded at one time, these beds may be evenly sown broad-cast, but not too thick, after which, they should be compressed by a roller, or trodden with the feet, and then slightly covered with fine earth from the alleys and levelled with a rake. In raking the beds, the teeth of the implement should be set wider apart than usual, otherwise the seed will be drawn into heaps and cause irregularity in the crop.

In ordinary culture, four or five pounds of seed are sufficient to sow an acre; but, in raising onions for pickling, double of these quantities will be required, as it is desirable that the bulbs may be small, and consequently they may grow at less distances apart. In the selection of seed, it is of the utmost importance to employ that which is no more than two years old, otherwise, often not more than one seed in fifty will come up. Its quality may easily be tested by forcing a little of it in a hot bed, or in warm water, a day or two before it is to be used; and if a small, white point should then appear, the seed may be pronounced as good.

PRUNING TREES.—It is now a well-established truth, that, when a young tree is in a vigorous state of growth, and the wood full of sap, just previous to its having made any hard wood (say in June or July, in most parts of the United States), any branch may be taken off, without injury. Therefore, at this stage of existence of the tree, pruning may be safely performed, giving its top that shape it is intended to assume when it attains its full size.

ADVANTAGES AND DISADVANTAGES OF SUBSOIL AND TRENCH PLOWING.

SUBSOILING, we are to understand, consists of loosening the ground below the depth it is ordinarily disturbed by common tillage. A heavy plow is first run along the field, say from six to ten inches deep, and is then followed, in the bottom of the same furrow, by a subsoil plow, which has no mould board, stirring the soil to a depth of six or eight inches more.

The reasons generally stated in favor of this system, by its advocates, are the following:—1st. That where there are drains in a field, subsoil plowing facilitates the escape of water into these drains. 2d. It deepens the actual thickness or amount of soil to the extent of from eight to sixteen inches; thereby affording double nourishment to the crops. 3d. It increases the heat or temperature by lessening evaporation. 4th. In dry summers, when crops are parched, the increased thickness of soil, which causes the roots to penetrate to a greater depth than usual, enables the crop to withstand the drought.

The chief objections urged against subsoiling are, 1st. The extra labor of men and horses. 2d. From the tardiness of the operation, it drives out of season the other work of the farm. 3d. On light, leachy soils, it is attended with little or no benefit, but on the contrary, is injurious in causing rains and liquid manure to descend more readily beyond the reach of the roots of the plants.

By *trench plowing*, the soil is cast up to the surface, and is either benefitted or injured thereby, according to the nature of its constituents and the manner in which it is trenched, after it is turned up. For instance, there is often contained in subsoils, a considerable proportion of matter, called by chemists, *protoxide of iron*, which is readily dissolved by rain water, and in that state, is poisonous to plants, if directly applied to their roots; but if these subsoils are opened to the influences of the atmosphere, this substance will gradually be converted into *peroxide of iron* (common red iron rust), and may be applied to crops without injury. It often happens, also, that some subsoils embrace fragments of rocks containing sulphur combined with iron (sulphuret of iron), which, on exposure to the atmosphere, is changed into green vitriol or common copperas (sulphate of iron), and in that state is quite as unfit for the food of plants as the protoxide of iron. Both of the two last-named salts, however, when brought into contact with lime, or any of the alkaline carbonates, are easily decomposed, changing the iron into a peroxide, which is not only harmless to plants, but in some cases beneficial to them. The sulphuric acid, contained in the copperas, also, at once combines, in definite proportions, with the lime, or other alkaline bases, spread upon the soil, and forms in one case, sulphate of lime (gypsum or plaster), and in others, sulphates of soda, potash, &c., according to the nature of the alkaline carbonate applied, the fertilizing influences of which are too well known to require repetition here. Hence, the good effects which often occur from abundant top-dressings with air-slacked lime, or of wood ashes, carbonates of soda, potash, &c., on land that has been trenched or deeply plowed.

If a soil be sandy, gravelly, or light, with little or

no sod on its surface, or vegetable matter beneath, no particular advantage will result from trenching, unless there be plowed under a liberal supply of coarse barn-yard manure—green clover, vetches, buckwheat, or weeds—dry leaves, grass, stubble, straw, or some compost rich in animal and vegetable salts; and then it will often become necessary to add a slight top dressing of guano, poudrette, or some stimulating manure, in order to give vigor to the infant plants. But if the upper soil be deep, and is interwoven with the roots of grass, weeds, &c., it may be turned under to a depth of ten inches to a foot; and so long as this vegetable matter remains in the soil, it will serve as a proper food for other plants. In short, if due attention be paid to the application of plaster, lime, ashes, vegetable and animal manures, if the ground be hot and sandy, trench plowing will make it cool and moist; and if it be strong and clayey, it will open it and keep it loose, rich, and mellow.

For an interesting article on pulverization of the soil, see page 196 of our sixth volume.

AGRICULTURE OF THE CHINESE.—No. 4.

Hemp, or Má, and Other Fibrous Productions.—

Among the fibre-bearing plants of China, there is a species of *urtica* [má], both wild and cultivated, that grows from one to two yards in height, and produces a strong fibre, in the bark, which is prepared by the natives, and sold for the purpose of making cable and ropes. (a)

Another strong fibre is obtained from the bracts of a palm tree, cultivated on the hill sides of Chusan, as well as in similar situations all over the province of Chekiang. These articles answer the purposes to which they are applied extremely well; but the ropes made from the Manilla hemp is of much greater strength and durability. (b) From the bracts of this same palm, the natives of the north make what they call a *so-e*, or garment of leaves, and a hat of the same material, which they put on during rainy weather; and although they look comical enough in the dress, still it is an excellent protection from wind and rain. In the south of China the *so-e* is made from the leaves of the bamboo and other broad-leaved grasses.

(a) The *má*, if we can rely upon the account of Tingqua's "Outlines," illustrating the cultivation of hemp and the manufacture of grass cloth, as published in a late number of the Chinese Repository, may be found in almost every description of fabric—in the largest cables of the junks, and even in the choicest textures of clothing, worn by the luxurious classes. Like silk, it is an article of universal consumption with the Chinese.

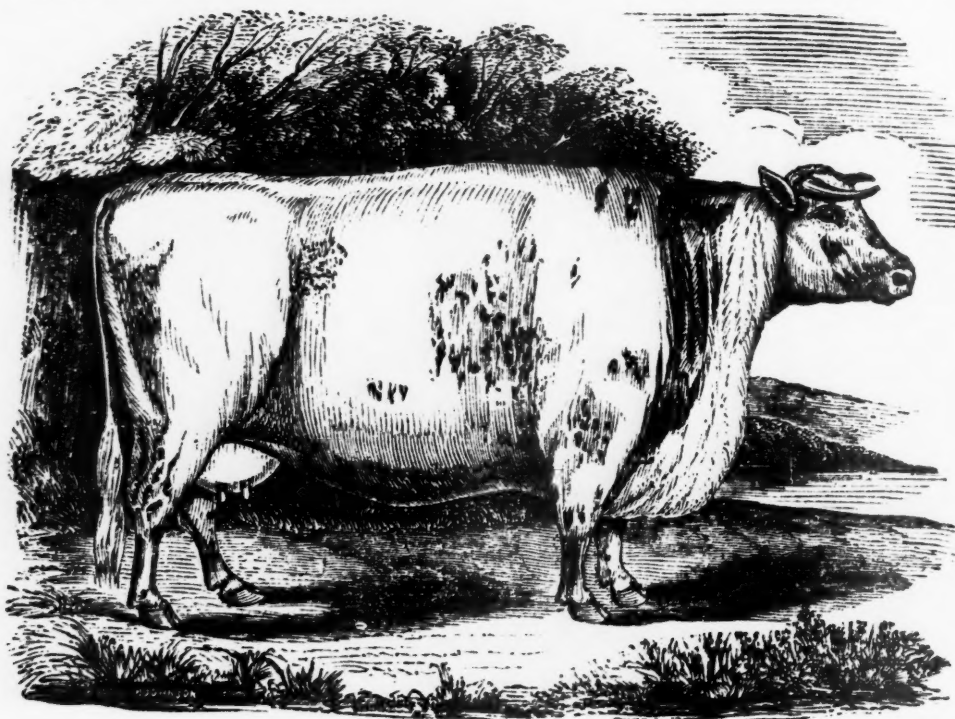
This plant is represented as an annual, of easy production, sown in February, and gathered in August. It grows on dry, hilly soil, like tea, in every variety of climate, all over the empire, and may be cultivated in a similar manner as the common hemp is with us. The seed is carefully collected, dried in the sun, and put up closely in jars, in order to preserve it from injury, in which state, it is probable it might be brought to this country, without losing its power of germination. We would, therefore, recommend that some of our agricultural friends, who are engaged in the China trade, procure a small

parcel of this seed for experiment in the United States.

(b) The Manilla hemp is the product of a species of *musa*, highly prized and in great demand amongst all the shipping of the East Indies, for cables and ropes. The Philippine Islands, also, produce a vegetable called "pine-apple plant," the fibre of which, is manufactured and embroidered into a beautiful cloth, generally known in the shops of the natives by the name of *piña*. This plant would doubtless grow in some of our southern states, and is worthy of a trial.

THE SHORT-HORN COW—ELLEN KIRBY.

THE following cut was politely furnished us by Mr. Sands, of the American Farmer. It is the portrait of the Short-Horn cow, Ellen Kirby, the property of Col. H. Capron, of Laurel Factory, Maryland. It was bred by James Gowen, Esq., of Pennsylvania.



THE SHORT-HORN COW—ELLEN KIRBY.—FIG. 25.

Col. Capron is one of the most spirited farmers and stock breeders in Maryland; and he writes as well as he farms. He has recently contributed a series of excellent articles to the American Farmer, which we have perused with much interest, as well as with profit. We hope, as he continues to drive the plow, that he will not forget to wield his pen.

PROPER TIME FOR SLAUGHTERING ANIMALS.—It has lately been discovered, by a French chemist, that the flesh of animals, which are killed in the latter part of the night, will keep much longer, without salting, than it will when they are killed in the day time. This proves that the flesh is better fitted for keeping, when the life and blood are taken from the animal, at the time its temperature is the lowest, and the respiration the least active. Hence the reason that the flesh from animals, that have been highly heated, or hard driven, will scarcely keep at all.

SHELL AND CORAL SANDS FOR MANURE.

A GENTLEMAN well acquainted with the shores of Florida and of the Bahama Islands, informs us, that in many places, they are composed entirely of the fragments of broken, or comminuted coral, shells, infusoria, &c., the supply of which, is inexhaustible, and would subserve the purpose of manuring all the cultivated lands in the Atlantic states, for thousands of years. The cost of procuring this sand, and delivering it at any of our seaports, south of Boston or New York, he thinks would not exceed \$3 or \$4 the hundred bushels; and if it were brought here, as ballast, from Key West, or Nassau, New Providence, it could be afforded for much less. This is a subject, we think, worthy of investigation, and recommend that experiments be tried, on a limited scale, by our agriculturists, both at the north and at the south.

It is well known that shell sand has been used for agricultural purposes, in the north of Ireland, for one hundred and fifty years; and for nearly the same length of time, it has been carried across to the opposite coast of Galloway, in Scotland, with the view of improving the land there. In Brittany, on the coast of France, it is applied in large quantities to the clayey soils and to marshy grass lands with much advantage, and is carried far inland for similar purposes. The quantity applied to each acre varies from 10 to 15 tons.

On the coast of Normandy, there is a kind of mealy-looking sea sand, composed of minute crystals of carbo-

nate of lime, of broken limbs and claws of small crustaceous animals, and of the shells or sheaths of numberless infusoria, which is extensively used on light sandy soils with good results.

A sample of shell sand, taken from the island of Isla, on the west coast of Scotland, and examined by Professor Johnston, consisted of the following ingredients:—

Alumina and oxide of iron,	65.7
Carbonate of lime,	34.0
Phosphate of lime,	0.3
	<hr/>
	100.0

Coral sand, which is similar in its nature to shell sand, is preferred by the farmer in a fresh state, probably, because it contains both more saline and more animal matter than after it has been exposed for some time to the air. Payen and Boussingault, it will be recollected, ascribe the relative manuring

powers of different substances when applied to land, by the quantity of ammonia or nitrogen, which they severally contain, and thus, compared with farm-yard manure, attribute to shell and coral sands the following relative values:—

100 lbs. of farm-yard manure, contains	
“ of nitrogen,	0.40 lb.
“ of coral sand (merl), “	0.51 “
“ of shell sand (trez), “	0.13 “

That is to say, so far as the action of these substances is dependent upon the nitrogen they contain, fresh coral sand is nearly one third more valuable than an equal weight of farm-yard manure, while the shell sand is only equal in virtue to one third of its weight of the same kind of manure.

A sample of fine infusorial sand, which is highly prized by the local farmers on the coast of Normandy, as analyzed by Professor Johnston, consisted of the following ingredients:—

Organic matter,	5.06
Chloride of sodium (common salt),	1.01
Gypsum (plaster),	0.32
Chloride of calcium,	0.73
Magnesia,	trace.
Carbonate of lime,	43.50
Alumina,	0.17
Oxide of iron,	1.20
Oxide of manganese,	trace.
Insoluble silicious matter,	47.69

99.68

From this analysis, Professor Johnston thinks that the value of this mealy sand does not depend solely upon the lime (43½ per cent.) it contains, but is derived, in some measure, also, from the 5 per cent. of organic matter, and the 2 per cent. of soluble salts, which are present in it. It is remarkable, also, for containing nearly half its weight (48 per cent.) of silicious matter in the state of an exceedingly fine powder. Its value, therefore, over the coarser shell sand, consists in its organic matter and soluble salts, and in the minute state of division in which its particles are found. This fine powdery state enables it to be mixed more minutely with a clayey soil; causes an equal weight to go further; and prevents it from opening and rendering still lighter the more sandy soils, in the manner coarse fragments of shells would be apt to do. In Normandy, it is generally applied in the form of compost, and is extensively mixed with farm-yard manure, which it is said greatly to improve.

PREMIUM LIST OF THE NEW YORK STATE AGRICULTURAL SOCIETY.—As this list published at length would occupy about eight pages of the *Agriculturist*, we forbear to insert it. About \$6,500 will be awarded at the coming show for premiums. This is nearly twice as much as has ever before been given. The premiums for foreign stock, &c., are also very liberal. We hope this will encourage the friends of agriculture in the neighboring states, and in Canada, to come out with anything they may think worthy of public show. Those who wish to see the list for the coming year, in full, can have it by addressing B. P. Johnson, Esq., Secretary of the Society, at Albany. The show is to take place at Buffalo, in September. Great preparations are making for it, and we have no doubt it will be the largest

and most interesting yet held. All the hotel keepers (thirty-four in number), have entered into an agreement not to charge more than from 75 cents to \$2 per day, for board and lodging.

LONG ISLAND LANDS.—No. 3.

By referring to page 347, of our sixth volume, it will be seen, that, from the analysis given of a specimen of soil taken from the vicinity of Hicksville, near the Long Island Railroad, the lands in that region are deficient in inorganic matter and alkalies or alkaline earths; and that the nature of the great mass of soil of this part of the island, from the surface downwards, is composed of so large an amount of washed sand and loose pebbles, that a large proportion of all soluble manures sinks below the reach of the roots of plants, in a very short period, rendering it difficult for the farmer to increase the fertility of this land without frequent applications of manure.

The question now arises, whether these lands, including the tract of country between Jamaica and River Head, can profitably be cultivated, and if so, by what means this object can be attained, and what class of crops are to be grown. This subject has been well investigated, the lands having been personally examined, and numerous inquiries made of those most familiar with their history and present condition, and have been eye witnesses of the most important experiments that have been tried, with the view of increasing their fertility. With these facts before us, we have come to the conclusion that these lands cannot be made permanently profitable, without a sufficient outlay for clay, marl, and several kinds of manure, to fit them for market gardens, apple orchards, or other fruits. In order to effect this, the following plans are suggested not with the intention of experimenting on an extensive scale, but with the object of trying a few acres at first, and if these prove successful, it is a matter that will for ever after take care of itself.

These lands may be classified under two general heads; namely, *prairies*, or those nearly or quite destitute of bushes or wood, as Hempstead Plain; and *oak barrens*, as those situated between Farmingdale and River Head. As these lands will require somewhat different management—the first two years, it is deemed necessary to treat of them separately.

1. *Prairie Land.*—Wherever the surface of these lands consists of a good sod of matted bushes or the roots of grass, the first year, a fair crop of potatoes may be raised, with no other outlay for manure than 40 to 70 bushels of leached ashes per acre, at a cost of \$5 to \$9, or a corresponding value of unleached ashes mixed with oyster-shell lime. The ground may be plowed early in the spring and planted with potatoes, the usual way, with the hills three feet apart, applying 40 bushels of leached ashes to the acre, or half a pint to each hill. In the course of the season, they should be cultivated, earthed up, and harvested, as soon as they are ripe. Or, the ancient mode may be adopted of turning up four-furrow ridges, lying back to back, 3 feet, 4 inches apart, from centre to centre, and planting very small potato sets, 9 inches asunder, in the middle of each ridge. In the latter case, 70 bushels of leached ashes may be

applied to the acre or about one gill to each set. After this, the potatoes may be hoed, earthed up, and harvested the usual way. By either of these modes, a crop of excellent potatoes can be raised, which, if sold at ordinary prices, in the New York markets, will be attended with some profit.

Should the potatoes be of an early sort, and dug by the end of July, a bushel of buckwheat may be sown on the same ground, which should be plowed under, as soon as it is in full flower. In this condition, the ground should lie until the next spring, when it may be planted with Indian corn, three feet apart between the rows and two feet between the hills. In order to give the corn an early start, 114 bushels of well-fermented stable or barn-yard manure should be applied to the acre (about a pint to each hill), or an equal amount, in value, of guano or poudrette. Four kernels may at first be planted in a hill, and the number of spires in each may be reduced to three, at the time of weeding or first hoeing, which may neatly be done without cultivator or plow. In July, at the time of the second hoeing, a cultivator, or double mould-board plow, may be run between the rows, and a fish (7,365 moss-bunkers to an acre), dropped in the furrow midway between each pair of hills. The surface of the soil should next be slightly moved and levelled with the hoe, covering over the fish to a depth of three or four inches, without forming any mould or hill. By these means, a good crop of corn may be raised, with a tolerably fair profit.

The land, by the time the corn crop is removed, will have been sufficiently broken and subdued, to be prepared for more permanent use. The next step we would recommend, is, to spread upon the surface of each acre, late in autumn or early in winter of the same year, 2,000 bushels of marl or strong clay, where it should remain exposed, during the winter, to the action of the frost. Early in the spring of the third year, this marl or clay should be plowed under, while moist or wet, to a depth of about a foot, in order to form a permanent bed for retaining moisture and the solvent parts of manures. This having been done, with the addition of a liberal dressing of guano, or stable manure, the ground will have been in a suitable condition for planting fruit trees, the cultivation of garden vegetables, or for the rotation of general crops.

2. Oak Barrens.—In subduing and enriching this class of lands, a very different course must be pursued, the first season, from that recommended to be adopted in renovating the prairies. For, as little or no sod exists on their surface, and only a scanty portion of vegetable matter of any kind, except bushes, the potato crop had better be dispensed with, and measures taken to produce a growth of buckwheat, to be plowed under, as soon as it is in flower, preparatory to a crop of Indian corn the second year.

Any time previous to the first of July, the bushes may be mown, or grubbed up close to the ground, chopped fine, and collected into small heaps, in order to dry. Towards the latter end of that month, a day or two before sowing the buckwheat, the ground may be broken up with a four or six-ox team, plowing under all the leaves and young sprouts that may exist on the surface at the time; and, when

five or six furrows have been turned up, the dry brush wood may be compactly piled in small heaps, on the newly-plowed ground, and set on fire. As soon as they become well ignited, these heaps may gradually be covered with earth, beginning at the bottom, and closing at the top, leaving one or more air holes near the base, according to the state of the wind, in order to keep up combustion. By these means, the brush wood will smoulder away, and in due time, will be converted into ashes and charcoal, which may be evenly spread on the surface of the field, at the sowing of the seed, to enrich the soil. If the labor of covering the brush wood with earth, is thought to be too great, it may be burned in the open air (although evidently at a great loss), scattering what ashes remain over the ground for the benefit of the crop.

In burning over thin, gravelly, or sandy soils, containing much vegetable matter, great precaution should be used, as it often destroys their staple by the operation, and dissipates a large proportion of their fertilizing substance, in the form of gas or smoke, into the air. The numerous fires which have spread over these Long Island lands, from time to time, depriving them of the principal part of their humus or vegetable mould, is doubtless the principal cause of their present infertility. All such soils, therefore, should never be burnt over without well weighing the benefits or evils likely to arise therefrom. In general, on thin, gravelly, or sandy soils, the evils or disadvantages will be found to preponderate.

The buckwheat being sown, as directed above, may be well plowed under as soon as it is in flower, for the benefit of the corn crop of the following year. Forever after this period, the treatment of these barrens may be precisely the same as that recommended for the plains, with the exception of scattering around each hill of corn, the second year, about a half pint of leached ashes (56 bushels per acre), at the time of hoeing.

A SKETCH OF CLINTONVILLE, N. J.

CLINTONVILLE is beautifully located, on elevated ground, on the west side of Elizabeth Creek, and contains several handsome dwellings. Other improvements are now in progress, among which is an institution for the higher branches of education, to be conducted by the Rev. Mr. Chapman, pastor of the Dutch Reformed Church, and when completed, will be a great acquisition to the neighborhood. Several retired citizens and others still engaged in business in the city of New York, have selected this place, or its vicinity, for their residences; which, on account of its healthy location, beautiful scenery, and easy access, renders it one of the most desirable situations within two hours' ride of that city. The soil, in this region, is good, and capable of producing fine crops of oats, corn, wheat, potatoes, &c.

The main route from Ohio and Pennsylvania, being through this village, droves of horses and cattle, are daily passing to New York, which, together with the numerous carriages and teams of every description, give life and animation to the place. The sweet sound of the "church-going bells" is frequently heard on Sabbath days and evenings. The various roads leading to numerous villages in every

direction make it a central point, and affords some of the pleasantest drives in the country. Its proximity to Elizabethtown, Springfield, North and South Orange, Bloomfield, Belleville, Newark, and many other places of note, makes it a very desirable location. A public square has been reserved in the centre of this village, which is intended to be improved and beautified.

Among the most prominent residences, at Clintonville, is the one recently purchased by Mr. Bailey, of New York, who is enlarging and adorning it with much taste, and the seats of Mr. Durand, Mr. Eadie, Mr. Sherman, Mr. Mann, Mr. Belcher, and others. Mr. Holyland, of New York, is building a very neat Gothic cottage on his farm at Camptown, on the east side of the creek.

In short, Clintonville possesses many advantages, embracing three churches, three schools, besides an academy, several stores, well stocked with goods, a post office, with a daily mail, and stages running to Newark twice a day. Its mild climate, healthy location, excellent water, beautiful scenery, pleasant drives, and accessibility to New York, render it a very desirable situation to such as wish to combine a residence in the country with business in the city.

J. M.

Clintonville, N. J. March, 1848.

LETTERS FROM ABROAD.—No. 2.

Vintage Scene—Cultivation of the Grape.—For the last ten days, we have been slowly progressing on mule back over roads almost impassable, stopping here and there at the wine estates on the way, and watching with intense interest the operations of the vintage, and scenery beautiful in the extreme. The hill sides teemed with animation, by women, young girls, and boys, some of whom were gathering the rich clusters from their native stems; others were collecting them in large, high baskets or hampers, after the rotten and blighted fruit had been plucked off and thrown away; while long lines of hardy Galicians were bending under their burdens in carrying them down to the wine presses to be trodden and made into wine. The merry song of these laborers, as they kept time to their work, was heard to resound from valley to hill, and every mountain sent forth the same joyous strains.

Varieties of Grape.—Of the vines most renowned for the production of wine, in the Upper Douro, there are only about a dozen varieties, the characters of which may be noted as follows:—

1. *Mourisco preto*, a vigorous vine, bearing a very black grape, of early maturity, and producing a fair wine.

2. *Museto preto*, resembling the above, but not so early in maturing its fruit.

3. *Touriga*—fruit black, producing a highly colored wine.

4. *Tinta Francisca*, having fruit resembling that of the *Touriga*, and is prized for its wine.

5. *Tinta da Minha*—fruit black—wine of fair repute.

6. *Tinto cão*,—fruit dark-colored, producing a tolerably good wine, which improves with age.

7. *Bastardo*—fruit dark, producing a good, light wine, slightly colored, and of an agreeable, though peculiar flavor.

8. *Donzelinho do castello*—fruit dark, producing a delicate, slightly colored wine of high repute.

9. *Malvazia grossa*—fruit large, white, and more valued for the table than for wine.

10. *Malvazia fina*—fruit white, smaller than that of the preceding, but of a more delicate flavor.

11. *Muscatel*—identical with the white Muscat of France.

12. *Gouveio*—fruit white, with a very sweet juice, and producing a wine of great renown.

Soil and Aspect.—The soil best calculated to produce the richest wines, let it be remembered, consists of the broken fragments of the reddish-brown limestone or clay slate, in which this region abounds; and experience has shown that the grapes are better flavored, when grown on the southern declivities of the hills, or in low sheltered spots facing the south, where the vines can receive the greatest heat from the sun; for those grown on the northerly sides of the mountains, or near their summits, are invariably watery, and produce a thinner and lighter wine.

Propagation.—The vineyards in this country, it will be recollected, are formed, at great expense, in terraces cut in the sides of the hills, rising one above another from the margin of the Douro, to an elevation of several hundred feet. In autumn, after the vintage is over, and the soil of the terraces has been sufficiently pulverized or stirred, healthful and vigorous cuttings are taken from the old vines, from a foot to eighteen inches in length, and planted nearly in a horizontal position, with their butt ends covered with earth, where they are suffered to remain until they have taken root. In the summer of the following year, these cuttings, or young vines, are transplanted two feet deep in the ground, at a distance of about a yard apart; and in from four to six years, with proper attention, they arrive at full bearing. Sometimes, however, where there are intervals occurring, in consequence of the loss of a vine, two or more long shoots of the nearest stock are bent down into holes dug for the purpose of receiving them, and then covered with earth in such a manner as to leave their tips above the surface. These, in due time, take root, are separated from the parent stem, grow, and often bear fruit the next year.

Management.—At the termination of the vintage, the vines are regularly pruned, by removing all the young shoots from the last year's wood, except one to each branch, which latter is reserved for bearing fruit the following year—care being observed to get rid of all old wood that can be spared by shortening back to the spurs preceding from the main stem. After this, the ground is trenched between the vines, incorporating the soil about their roots, together with the fallen leaves and fragments of the shoots; and previous to the first of January, the soil is again stirred around the vines, one or more times, and all weeds, insects, etc., which may appear, are cut up or destroyed. By this treatment, the vines put forth their leaves, the grapes form and gradually swell to ripeness, with blooming hues, and but little more attention is required, till the long-wished vintage arrives.

F. R. S.

San João da Pesqueira,
Upper Douro, Sept. 27th, 1847. }

LETTERS OF R. L. ALLEN.—No. 3.

THE banks of the Ohio exhibit the same bold and attractive scenery which characterizes those of the Monongahela. There is, however, this difference. The elevated rocky heights, which seem almost to overhang the latter, frequently affording scarcely a by-path along the shore, recede from the margin of the former, leaving a wide alluvial bed on either side, beyond which the hills rear their gracefully rounded or precipitous crests, still almost everywhere covered by the original forests. These, with the herbage on the plains below, had been stricken by the autumnal frosts; and in the absence of the cheerful hue of the evergreens which line the more northern streams, gave a somewhat sombre aspect to the scenery. When clad in the luxuriant foliage of summer, I can imagine few views of the same extent, that afford more interest and beauty. For nearly 800 miles, through the perpetual windings of the Ohio, scarcely a single view can be found that would not make an attractive picture.

If shorn of its forests, more densely populated, and thoroughly cultivated, with numerous vineyards up its steep hill sides, with here and there an old castle occupying its almost inaccessible heights, the banks of the Ohio would resemble those of the Rhine. The castles and their feudal oppressors, I trust we may never see; but the cultivation of the vine is destined to be much more extensive here than it ever was or ever can be on the banks of Germany's famed river. Many vineyards are now planted on the Ohio, and the soil and climate are found suited to the production of the grape. Its success is now placed beyond a doubt. The perseverance and skill already enlisted in its cultivation will eventually enable the vine growers of Ohio to supply the Union with its wine and winter grapes. I have full confidence in the future application of chemical principles to the preservation of this delicious fruit. This will furnish us a bountiful supply for months after its harvest, as a substitute for the insipid foreign grape which now graces the desert, rather as a luxury to the eye than to the palate. I have seen many specimens of wine from the native vines, which, though generally differing in character from most of the imported, are rich in flavor, and yield the luscious odor and taste peculiar to that of the well-ripened foreign grape. When connected railroads shall have crossed the Alleghanies, and brought this fertile valley into close proximity, with the sea board—which they will soon do—the markets of the Atlantic cities will be as fully and as regularly supplied with luscious grapes as they now are with the fresh milk and cream carried to them from a hundred miles in the interior.

We reached Cincinnati in one of the well-conducted packet boats which run between this place and Pittsburg, in about forty hours. Here all was activity and bustle. Success had followed the last year's efforts of the merchant, the manufacturer, the artisan, and the farmer. Famine abroad, and war at home, had created a demand for the products and energies of all, and crowned each with prosperity. The consequences were evident in the lengthening streets, the new and massive buildings, and the more than Herculean excavations of the surrounding hills, which everywhere met the eye. The site

occupied by this city is a segment of successive table lands (originally requiring but little grading), of which the river forms the arc, and a cordon of high precipitous hills, the chord. The table lands are already nearly covered with buildings, and those gigantic hills have recently been attacked with a vigor that indicates their speedy demolition. There is a spirit characterizing many sections of our country, that amuses while it challenges our admiration. Fifty years ago, the ground now occupied by Cincinnati was a wilderness. Five years ago, Mount Adams, then remote from the city, was solemnly dedicated to science, and set apart as a permanent retreat for the astronomers of the western hemisphere. A beautiful observatory crowns its summit and brings the star gazers nearer the object of their research. I climbed its lofty heights, and judge of my surprise to find a recent excavation of 50 feet, directly in front of this consecrated spot. The foundations are already crumbling beneath the blows of the sappers, and these are temporarily sustained only by massive buttresses of mason work. Streets are laid out, and shops and shanties encircle it. What was recently a worthless and almost inaccessible hill, yields a harvest of lots worth \$40 per front foot! The *dollar* has encountered science, and it needs no prophet to foretell the issue of the contest; and like the Indians and Mexicans, she must yield, and seek a temporary retreat beyond the immediate convenience of her antagonist.

What a vision is opened from the summit of this hill! What profusion of nature and art! A population of 100,000* lie at your feet, in the possession of wealth, luxury, and intelligence, far beyond the average enjoyed by civilized nations. They are surrounded by wealthy farmers, mechanics, merchants, and professional men, whose homes reach beyond the great northern lakes, beyond the Mississippi, and to the very shores of the Mexican gulf. And this whole region, but half a century since, was an almost unbroken wilderness. From the comparatively ancient Fort Le Boeuf, boats may descend through French Creek, from 1,000 miles above. They can wheel on and ascend the Tennessee, 1,000 miles, through the midst of three magnificent states; or they may coast along the borders of two others, 1,000 miles more by the Wabash. They may pass round into the Mississippi, and penetrate nearly to its source, 2,000 miles more; or turn into the Illinois or Wisconsin, and reach nearly the same distance. Returning, they may ascend the Missouri till the snow-clad heights of the Rocky Mountains meet their view; and farther down the Arkansas, the Red River, the Washita, the Yazoo, and the innumerable bayous below, afford an almost interminable line of water communication. And through all these extended avenues, the resources of the country, in its soil and minerals, its elements of wealth, and capacity for ministering to the comfort and prosperity of its inhabitants, are unsurpassed.

Art asks you to observe her achievements. She points out her thousands of buildings, all well furnished with the objects for which they were designed; her numerous steamboats moored at her wharves; her miles of manufactories stretched

* This is about the population of Cincinnati and its suburbs; and the thriving villages of Newport and Covington on the opposite side of the river.

along the shore and climbing the hills in her rear. There is the Whitewater Canal, leading into Indiana; here the Miami, reaching to Toledo on the northern lakes. On the opposite side, the railroad extending to Sandusky, and at a lower point on the same waters, it is soon destined to connect with Columbus and Cleveland; while another will ere long reach the tide waters of the Atlantic. Fine McAdam roads radiate to every important point in the interior; and over all, from east, north, south, and west, flashes the electric telegraph, with intelligence from every quarter of the globe. Such are the advantages, and such the achievements of American freemen, for a single half century.

Although heretofore, and probably destined for a long time to remain, a large element in the prosperity of Cincinnati, there is one feature which detracts much from the interest that would otherwise attach to it. It is the Porkopolis, not only of America, but of the world. No other place on its surface, ever witnessed the annual slaughter of so many of the "swinish multitude" as is here compressed within the limits of a few weeks. It is estimated that nearly 400,000 will yield up their greasy lives at this place the present year. It is the height of the packing season, and the streets are filled with their unwieldy forms, wending their weary steps to their last home. The air is redolent of their grunts and odors; and the tables groan beneath their spare ribs, their joints, their hams, their head cheese, souse, sausages, and sides. Every waggon you meet is loaded with them, piled up like ricks of hay; and every warehouse is crammed with these precious freights. I have seen piles of coffee and cotton, before at New Orleans and elsewhere; but the piles of dressed swine here far exceed (relatively) anything of the kind I have ever witnessed.

I called on our friend, and the friend of agriculture, Mr. Neff, who has recently turned his attention to beef packing. This is now second only to that of pork in importance. The introduction of the best breeds, and especially the Short Horns, has largely increased the value of cattle for packing. Although not fed to the extent I think they should be for the best interests of the farmer and the packer, they are highly improved from what they were but a few years since. In this career, no one has been more conspicuous than Mr. N., or has pursued the subject with more constancy, intelligence, and liberality. He has a farm in Illinois of 6,000 acres, where he annually fats from 1,000 to 2,000 head, which are brought to Cincinnati for packing. He considers \$400 to \$500 well expended in a good bull, whose services he is willing to bestow gratuitously for the purpose of getting the progeny, when ready for market. These, he thinks as ripe at three, as the common cattle of the country are at five or six years old. A handsome fortune has attended his efforts. It is to be hoped that others engaged in the rearing of stock, will follow, with equal perseverance and success, so laudable an example.

Cincinnati, Nov. 24th, 1847.

THEORY should not be adopted, except as a mere formula for the expression of existing knowledge.

THE GRAPE CULTURE AND WINE MAKING IN OHIO.

In the January number of the *Agriculturist*, I notice a communication from Mr. S. B. Parsons, of Flushing, relating to the grape. It is an interesting article, and gave me information on a subject in which I have a deep interest, particularly the qualities of the 101 American new seedling grapes advertised for sale, and all represented to be of unrivalled excellence. Our horticultural societies, as at present organized, devote their money and time to the exhibition of flowers, and granting premiums for them, and where a new seedling fruit is introduced by a member, it is often praised too highly. Much more good, I think, would result, if premiums were offered for new seedling fruits of superior excellence, and a committee were to report on their quality. I have been anxious to obtain all the new varieties of native grapes, in order to test their quality, both for the table and for wine; but, like Mr. Parsons, I have found so many worthless, which have been highly praised even by our horticultural societies and magazines, that I have been deterred from it.

Mr. Parsons deems the Catawba and Isabella, the only good native grapes. I cannot concur with him in this opinion, at least in our latitude, as regards the qualities of a few kinds, claimed to be natives. The Isabella, we deem an inferior grape, with us, both for the table and for wine. It succeeds better with you. The Catawba will be worth millions to the nation though we have some grapes that are hardy, and called natives, that would generally be preferred for the table. The Herbemont, Ohio, Lenoir, Missouri, and Elsanborough, are of this character. The fruit of each kind is small, and free from the hard pulp common to most American grapes, but generally equal to the foreign, Miller's Burgundy, for the table, and the bunches of some of them much larger. The origin of the Herbemont and Lenoir, is not certainly known, but both are as hardy with us as the Isabella. These, by some cultivators are considered the same grape. There is a marked difference, however, in the leaf and wood. The fruit of the Herbemont, is somewhat larger than the Lenoir, and the bunch less compact. I am inclined to the opinion, that the Ohio grape is the same as the highly-prized Jack grape, of Mississippi. I have had bunches of this grape measure 10 inches in length. The Elsanborough, is believed to be a native of New Jersey, and I have but little knowledge of it. It is there said to be a good bearer. The few vines I have, do not bear well, but the quality is good. We have two or three other new grapes that promise well, but till we have further experience, I will not venture to recommend them. I do not believe the Ohio will succeed at the east. It does much better with us, in town, than at my vineyards, though hardy in all its locations. I now have the Jack and other native grapes from the Mississippi, but not in bearing. The Catawba ripens with us as early as the Isabella, and I have had a bunch of it at one of the vineyards, that weighed 24 ounces.

In a late letter, Mr. Buist speaks of Brown's variety of Catawba as superior. Is this a new variety? If Mr. Parsons has tried the grapes I have named, as succeeding here, and found them

not to answer in your region, he will do a favor by so saying to your horticulturists.

As soon as the season will permit, I shall send a sample of my champagne to your city and let some of your editors have a taste of it, even should it fare no better than some sent by a German manufacturer to one of your French editors, some months since. I doubt not he gave it all the credit it merited. I have full confidence that mine will stand the test with the best made in your city, from green corn and Newark cider. And when persons have become accustomed to the muscadine flavor of the Catawba, and we have had two or three years experience more, we shall compete successfully with the best imported. I find some difficulty in procuring bottles. In all the other cities, I can obtain them; but you are so near the region where the Harrison cider is made, which makes a champagne equal to any, except that made from green corn, that you have use for all your empty bottles. The champagne here, was made one month, and sold the next; and its maturity was forced by artificial heat. When properly made, it takes 18 months from the press before it is fit for use; requires deep, cool, dry cellars; and after keeping it as cool as possible, the average loss by breakage, before it is fit for sale, is from 10 to 15 per cent. This causes champagne wine always to be dear in France. The price in Paris is about the same as in your city. In two years from this time, if ever, we shall be able to make it of the best quality. In the new wine, as it comes from the press, under the management of different vine dressers, there is 100 per cent. difference in the value of the article. I shall select the best only, and spare no expense, as profit is not my object. N. LONGWORTH.

Cincinnati, January, 1848.

CHOICE OF TREES AND SHRUBS FOR CITIES AND RURAL TOWNS.

I WAS highly interested with the articles upon this subject, which appeared in your last volume; and the beautiful illustrations accompanying them, conveyed more information to my mind than ten times the same amount of letter print. The present style of illustrating descriptions by pictures, is one of the great and good improvements of this improving age. But I beg this writer to bear in mind that in many of the rural towns of America; I might say nearly all of them, the building lots are laid out upon such a pinch-gut principle, there is so little room to spare, that fruit trees should always be looked to first. In fact, we often see some useless shade tree occupying a space that might have been occupied by an apple tree that would have furnished not only the luxury of good fruit, but the same amount of shade; and according to my notions of utility, more ornamental than that "great, strong, ugly thing, the Lombardy poplar," which affords neither food nor good fuel, and dead or alive, has no utility. (a) I cannot therefore, join in the recommendation of this tree, while our native forests afford so many others of equal beauty of form, and far more cleanly in their habits. If a tall spire-like tree is required to break the monotony of the line, there is the larch, the fir, or even the white birch, all better trees than that filthy worm breeder, the Lombardy poplar. (b)

One of the most unaccountable tastes in the world to me, is that of the man (and I have seen a thousand such), who can content himself to settle down in the middle of a western prairie, without a single tree or shrub, either fruiting or ornamental, around his dwelling, and sometimes hardly in sight. Such men may be honest, but they certainly lack refinement, and lose one of the enjoyments of life.

In reading the writer's description of the occidental plane (button wood or sycamore), reminded me of a remarkable instance of the rapid growth of that tree. Mr. Nathan Lord, who lived to near the age of ninety, on the banks of the Shetucket River, in the town of Franklin, Ct., when he was first married, carried four young trees of button wood, six miles, on horseback, and set them out near his house. While the planter of these trees was still a hale old man (I think 84 years old), one of them was uprooted in a gale, and he assisted to saw off five twelve-foot mill logs, clear of limbs, the butt of the largest of which was more than four feet in diameter, while the top cut was but a trifle smaller, though I cannot remember the exact size, or amount of lumber sawed from the tree.

Few, now, who see the banks of this river lined with this kind of tree for miles, are aware that all those venerable looking old button woods sprung from the four little sprouts transplanted by good old Deacon Lord, less than one hundred years ago.

SOLON ROBINSON.

*Lake Court House, Crown Point, Ia., }
February, 15th, 1848. }*

(a) Our correspondent probably is not aware of the fact that this tree, in some parts of the country, is headed down to the lowermost limbs; and that a crop of excellent oven wood is obtained from the young shoots, which are cut and made into faggots in the spring of every second or third year. The timber of the trunk, too, when sufficiently large and sound, has been wrought into articles of household furniture of most exquisite beauty, surpassed by few, if any, of those made from our native woods.

(b) It might be questioned whether the larch, the white birch, or the fir, would serve for contrasting with masses of round-headed trees, of great height; as these trees, when they arrive at their full growth, in a great measure, lose the spiral shape of their tops, and consequently cannot mend the defect in the landscape, which the full-grown Lombardy poplar invariably supplies, whatever may be its age or size.

COMPARATIVE FACILITY OF DIGESTION.—The time required for a healthy person to digest boiled rice is one hour; sago an hour and forty-five minutes; tapioca and barley two hours; stale bread two hours; new bread three hours; boiled cabbage four hours; oysters two and a half hours; salmon four hours; Venison chops one and a half hours; mutton three hours; beef three hours; roast pork five and a quarter hours; raw eggs two hours; soft-boiled eggs eight hours; and hard boiled eggs three and a half hours.—*Dr. Warder.*

GUANO, it is stated, may be advantageously mixed with an equal weight of common salt, which, on being applied to land, will prove beneficial both to the crops and to the soil.

YANKEE FARMING.—No. 3.

Good people all of every sort,
Give ear unto my song;
And if you find it wondrous short,
It cannot hold you long.—

The Mournful Soliloquies of Uncle Sim and Aunt Nabby over their Favorite Tom Turkey.—After the affair of the owl, and the unlucky killing of the favorite cock turkey, I must confess I never saw a more dejected couple than Mr. and Mrs. Doolittle. It was in vain that their children, myself and wife, endeavored to make them forget their loss and turn their thoughts to other subjects; all we could say or do, they would not be comforted, but continually recurred to the tragic event as something never to be forgotten. Every now and then, as he sat listlessly before the fire at evening, Uncle Sim could be heard to ejaculate, in a half-distracted tone, "Wal, I never felt so down hearted afore!—I'm clean done up. The great, nice feller! How he used to gobble, and strut, and puff! He was never afraid o' nothin', if he had a bin, he'd a flied away with the owl—the tarnal critter! What a dunder head, I couldn't a let Bill fire the old queen's arm instead o' myself. I guess ye'll never see me shoulder a gun agin. Oh! Toramy, Tommy, Tom—he know'd well he was the pride o' my heart;" and again he repeated, "how he would gobble, and strut, and puff!" Then he drew a long breath and sighed, cocked up one eye, and looked so hard into the fire with the other, that it seemed as if it were about to start from its socket.

As for Aunt Nabby, for a perfect wonder, she was more brief in her expressions, though not less tender or regretful. With her it was "orful suz—know'd anybody ever the like—ony think, now, that darlin' duck o' a turkey to fall dead"—for she was too tender of the feelings of her husband to use the reproachful words, "to be shot"—"and the pesky owl to fly clean off without a scratch! Oh! massy, Miss Teltrue," turning to my wife and wiping the tears from her eyes—"warn't he a grand, bold feller?—If he had'n't a bin, wouldn't he a flied too?" Thus repeating the comforting idea of her husband, that "Tom," as the turkey was familiarly called, died bravely.

Uncle Sim Starts with us in Search of Poultry for Molly.—I had been at first disposed to laugh at the mishap of my neighbor, and look upon it as a good joke; but when I found he was taking it so seriously, I held a council with my wife and Molly, and we agreed to get Uncle Sim out on an excursion as far as a neighboring seaport, with the ostensible view of purchasing the former some pullets to recruit her stock, though really hoping to find some buff turkies, which would take the place in the affections of her parents of those so recently lost. Uncle Sim was always glad of an opportunity to oblige Molly; but as his old mare was heavy with foal, and of course could not travel well, I volunteered to call for them the next morning, with my fast-trotting, sturdy Canadian and sleigh, to make the excursion.

Our Adventures thereupon.—We were off in good time, and had not proceeded far, before the keen, bracing air, the spirited action of my horse, the merry jingling of the bells, the smooth, rapid gliding of the sleigh and the varied objects we met

along the road, began to tell on the melancholy stupor of Uncle Sim, when we fortunately overtook a party of young people in half a dozen single sleighs, out on an excursion of pleasure. I soon found that it chafed my horse to follow them at their moderate pace, and accordingly reigned him out of the beaten path to pass them. Discovering this, the young men of the party all shouted to each other to whip up and prevent us. Instantly my high-spirited horse seized the bit firmly between his teeth, which left me no power over his mouth to hold him; and with a muscular force and rapidity of motion, that I did not dream he possessed, he covered us with a shower of snow from his heels; and in less time than I have written this sentence, he let go the bit, and we found him moving quietly again, though still rapidly, along the hard-trod snow path, considerably ahead of the discomfited young party.

After rubbing his eyes with astonishment, and brushing the snow from his person, Uncle Sim's face brightened up with a triumphant smile, which did Molly and myself a world of good to see, at the same time exclaiming, "Wal, Sargeant, if he didn't go then! Why, I thought he'd a buried us in the snow, and we should be comin' out o' t'other side o' the airth afore we knowed it. He'd a beat that 'ere feller's hoss now all to fits, that they tell on in Varmount, that was so smart, a streak o' lightnin' chased him all round the pasture three times and couldn't catch him. You'd best trade him to the telegraph men as sure to beat 'em!"

He was so tickled with this conceit that he could contain himself no longer, and burst into a loud laugh; and as the sleigh at that moment took a sudden lurch, he lost his balance, and would have pitched heels over head into a snow bank, had I not caught him by the cape of his overcoat and held him in. At this, he sobered down a little, but I gladly saw that his melancholy fit was broken, and for the rest of the way we kept up a cheerful and improving talk.

As for Molly, nestling in a low seat at our feet, and nearly hid from view by a large buffalo robe, her eyes sparkled like frosty diamonds floating in the buoyant air, declaring it was the first good sleigh ride she had had that winter, and seemed quite beside herself with delight.

Sisters Lizzy and Sally, and their Poultry.—The first place we stopped at was a large farmery, the property of two old maids, well known, the country over, as Sister Lizzy and Sister Sally. They were the sole survivors of a family of three sons and five daughters, not one of whom had married. As one died after another, they left their share of the estate to the survivors; and thus these two old ladies had become quite rich. But the addition of great wealth did not change their primitive habits, nor alter their singular notions. Here they lived as their ancestors had before them; the same house; the same furniture; and even the same dress—a high cap, short loose gown, thick, quilted petticoats, with large pockets dangling at each side, yarn stockings, and high-heeled, buckled shoes. But it would take three chapters, at least, to describe them, their stock, farm, and doings; so we will leave these matters to some more convenient period.

These ladies received us formally, yet politely; and when we stated that we had called with Molly to see if we could not purchase some pullets to replenish her stock of poultry, Sister Sally, the eldest, a fat, waddling old woman, took off her cap, put on a broad-brimmed old beaver hat—an heirloom, probably from her grandfather—and a great, long-tailed coat, garnished with bright metal buttons nearly twice the size of a dollar, and out she went with us to see the “biddies” as she called them.

Sister Sally was great on the power of fresh crosses on her stock of poultry; or as she termed the matter, “it was mighty good to change now and then, and get a new crowin’ biddy, and some new pullets; the breed would run out if we didn’t swap once in a while for new ones.” But she never asked herself what ought to be the kind and quality of these “new ones;” or whether they would be likely to improve or deteriorate the progeny of those she already possessed. Strange birds and from a distance, were the only requisites in her eyes. The result was, that we found a curious mixture of all kinds of breeds, producing the most incongruous offspring that one could imagine. There were double and single combs; top knots and clean heads; muffled chops and bare throats; big bodies and little bodies; bush tails and no tails at all; long legs and short ones; five toes, four toes, and some without toes. As for colors, there were white and black, buff and blue, red and brown, grizzly and grey, ring-streaked, speckled, and russet; in fact, every variety of light and shade that a kaleidoscope could gather together. The plumage was enough to make a ghost laugh. On some, the feathers lay smooth and naturally; on others, they pointed from the tail to the head; while on not a few, they stuck out at right angles to the body, like the quills of a porcupine. Several had hair instead of feathers; and these, Sister Sally said, “was sure to freeze to mortal death if left out arry cold night.” Some laid, and some, she “kinder guessed, would if they only had a chance when warm weather come; but wasn’t sartin” as to this probability. In truth, they were “fresh,” and a “change,” with a witness; and proved beyond the power of words, the strength of this foolish notion which seems inbred in most of my countrymen and countrywomen, and puts me out of all patience with them whenever I think of it.

Ideas upon Breeding.—How strange that in breeding we cannot take some model to work from as the sculptor does, and settle in our mind before we start what qualities we desire to produce; and then take those animals for propagation which possess these in the greatest perfection. I would just as soon think of throwing a handful of loose pebbles of various sizes at a two-inch auger hole fifty yards off, with the vain expectation that a majority of them would pass through it, as to suppose that I could get anything good from the breeding together of incongruous races.

But to resume. If Molly took a fancy to a single bird, Sister Sally would have it caught by a wonderfully clever little dog that followed at her heels, and after handling it with great affection, she would let it gently down to run again, with a “wal, I guess we can’t spare that biddy, no how; it’s got

yaller legs, and them’s what makes yaller skins, which our John says brings most in market.” The next had “too handsome a tail to sell this year;” another had “sich a poorty red rose of a comb;” while the last “laid such a sight o’ eggs as would mor’n fill a heaping peck basket.”

Thus we were obliged to give up the idea of a purchase here, and so went on. But a less variety and number to look at, coupled with a greater disposition to sell, was all we found by calling at a dozen or more other farm houses. At last we stopped to make a short call on Mr. Doolittle’s staunch political old friend Squire Jones.

Molly Finds some Poultry to Suit her.—The squire is a man of education, and is considered the best farmer in Agoknequaw. He and his kind lady received us very cordially; and upon making known the object of our call, his son, Edwin, a fine lad of thirteen, offered to show us the poultry, which his father said, was under his special care. As there were no buff turkies among it, Uncle Sim felt no interest in going out, and so remained to talk politics and town matters with the squire.

The poultry yard we found abundantly stocked, very roomy, and complete. It fairly amazed Molly. There were superb peacocks with their singularly beautiful plumage; Guinea hens both white and grey; glossy-black and snow-white turkies; large and small China, the formidable Bremen, and graceful wild geese; the large black duck, and the beautiful little wood duck. Of hens, Edwin said he formerly kept a great variety; but had now settled down to three kinds. The first we looked at, called the Pokanokets, were a superb, large breed—I think the most perfect barn-door fowls I ever set eyes on. The color of the hens was a bright, deep-golden ground, occasionally tipped with a white feather, and mottled all over with small jet-black spots. The cocks had large, double combs, reddish golden neck feathers and wings, black, speckled breasts, and black underneath the belly, and behind. They had fine heads and short bills; long, round, deep bodies, with fine, flat, yellow legs, of medium length. The other varieties were the handsome black Poland top knots, and the clean-legged, little white Bantams. All these were kept apart in large yards, and supplied with all the conveniences of food, water, shelter, laying, and hatching, that modern invention could provide.

Molly’s eyes glistened, as she walked over the premises; but thinking it would be too much to ask for anything she found here, I broached the subject for her. Edwin replied that he never sold poultry; but instantly gallantly added, if Miss Doolittle would do him the favor to accept a half dozen of the Pokanokets for the barn yard, and a few Bantams to nestle in the kitchen, together with a pair of the graceful white turkies, which he had noticed she took a great fancy to, he would send them up to her father’s the first day the weather softened. Molly was so surprised at this unexpected offer, that she was going to refuse, but I stopped her and accepted them with many thanks; for I knew full well she would contrive to repay the generous boy amply in some way, before the coming summer should pass over. Returning to the house we found a good dinner waiting us, which

dispatched, and sitting a little while to digest it, off we started for the seaport village, of some twenty or thirty buildings, about half a mile further on.

Uncle Sim, unexpectedly, Lights upon a Yellow Tom Turkey.—Without saying anything to Uncle Sim, it was here I hoped to surprise him by the sight of a superb flock of buff turkies; as I had understood Captain Truck had recently arrived in his little schooner from a trading voyage with Yankee notions to Virginia, and had brought home some of the choicest birds to be found in that turkey-breeding region. And sure enough, as we drove up, there they were, superb great eighteen and twenty-four-pounders, just let loose from their coops, gobbling and strutting away in great force, joyous enough at obtaining their liberty once more.

How his Heart is Comforted at this Discovery.—Uncle Sim instantly hopped out of the sleigh, and instinctively caught up the biggest yellow gobbler in both hands with unspeakable delight. Holding him out at arms' length in order to take in his whole noble proportions, he gazed at him with intense satisfaction; then bringing him up closely to his bosom, affectionately patted his head, stroked his neck, and at last, as I supposed, stooped down to rub his face against him. The turkey not relishing quite so much familiarity, seized Mr. Doolittle by the nose, and gave it such a grip in his powerful bill, as to cause him suddenly to let go of the bird, and drop his hands by his side. This example however, the belligerent gobbler did not seem inclined to follow, but only held on the tighter; and by way of additional exercise of his pugnacious powers, commenced beating Uncle Sim over the head and shoulders with his formidable wings with all his might. This was rather too much for Mr. Doolittle's affectionate patience to bear; so without further preliminary, he seized master Tom by the neck with both hands, and gave him such a vice-like grip, as to make him open his mouth with a choking spasm, and release the nasal organ of my excellent neighbor, without further ceremony, from its durance vile.

Here Captain Truck, a good natured, hearty, bluff fellow, came running out of his house nearly bursting with laughter. "A regular man-o-wars-man is old Longbeard, Mr. Doolittle; but had you belayed a bit, I could ha' told you that afore putting your grappling irons aboard of him."

Uncle Sim's nose bled slightly, and turned from its usual fiery red to nearly black and blue, where the turkey had gripped it; but to our surprise, he took the matter uncommonly good naturedly; and the very first he chose to head his new stock, was the identical belligerent that made the savage and unlooked-for attack upon his fiery proboscis. The only satisfaction we could get out of him for this selection, was, the shrewd remark, that "if hard upon fightin', he was sartin to be powerful at breedin', and the chicks would be desperst strong, and take care o' themselves." I thought there was philosophy in this, and of course, did not attempt to gain-say it.

His selection over, we took to the sleigh again, and turning my hardy Canadian to the right about, he trotted us home under a hard pull, a distance of eleven miles, in a trifle less than an hour. Pretty fair work, I thought, when we consider the load at his heels. He did not appear to be tired nor blown

in the least at his performance, but upon unhitching, walked into the stable, gave a snort and three long puffs, and then fell to eating like a hungry pig just roused from a comfortable snooze in a warm pen.

SERGEANT TELTRUE.

SAMPLE OF A DEBATE IN A FARMERS' CLUB —EXPERIMENTAL FARMS.

THE course, which discussions in a Farmers' Club often takes, renders it evident that the experiments made are generally conducted on no fixed principles, but are for the most part under the guidance of chance. For instance, let the subject under consideration be the use and application of liquid manure, or of the nitrates of soda and potash, or of plaster and ground bones, the debate will almost invariably take a course similar to the following:—

Mr. Hope has tried the manure in question, and derived no benefit from it. Mr. Playfair, on the other hand, announces the brilliant success of his experiments with it; while Mr. Drawback declares his experience to be the very reverse of this, and to coincide with that of Mr. Hope. "Liquid manure," he says, "is liquid nonsense; and a few loads of rotten dung are worth more than all the nitrates of soda and potash in creation." This Mr. Goodluck as stoutly denies, and so the discussion proceeds to the extent of at least a dozen speakers, until Mr. Fairweather, the chairman, wisely sums up with becoming impartiality, by declaring that, "there is a great deal to be said on both sides."

Should the subject before them, however, be the merits of marl, as a fertilizer, the course of the debate may be so far different, that it will be condemned *in toto*, by acclamation, save one, or at most two farmers, who may have the boldness to defend it; and on inquiry, it will be found that these are not residents of the district, but have come from a section of the country, where, from the nature of the soil, marl is applied with the greatest benefits.

Now, in regard to the discordant results announced by these different individuals, they may be traced to a difference in the conditions under which the experiments were made. The soil, in one case, was deficient in the elements contained in the substance employed as a manure; in the other, it contained them in as large quantities as the crop raised could take up; or the crop, in the one case, consisted of a plant, into the composition of which, those elements sparingly enter, while in the other, they were largely required; or in the manure applied, two substances required by the crops were present, while two more were deficient. Experiments of this kind, therefore, in order to be conducted properly, require both a knowledge of the chemical ingredients of the soil, and of the plants to be raised in it; also, a knowledge of what portion of those ingredients they derive from the soil, and what portion from the atmosphere.

Experiments in farming, may be said to consist of two kinds; namely, those which have for their object the adoption of new modes of cultivation, based on scientific principles, but which have not yet anywhere been reduced to practice; and those which have for their object the extension of superior systems that have long been attended with success in other states, or in countries existing un-

der similar conditions of soil and climate. The first of these would be best conducted upon small farms exclusively devoted to experiments, supported by the subscriptions of associated gentlemen of wealth, and managed by those familiar with the details of practical farming, and with the principles of science. And it is believed that the funds of agricultural societies, which are generally expended in the form of premiums for over-fed animals, extraordinary crops of grain, &c., attended with no particular benefit to the community at large, might better be employed in a similar way.

With one or two exceptions, we believe no agricultural society, in Great Britain, now bestows premiums for the waste of food in "stuffing a beast to repletion," and wearying him "under a cumbrous load of bloated fatness," totally unfit for human food. The ostensible object of the exhibition of cattle, in England, at present, is to submit the finest specimens to the view of judges, having reference only to the improvement of the breed, economy in feeding, and exciting emulation. The same principles, we think, should be adopted in this country, which could be successfully accomplished by the establishment of a small experimental farm in each district or county, at public expense, under the direction of an intelligent committee of the State Agricultural Society, by whom the conditions of the experiments should be laid down, so as to obtain uniform results, and test the accuracy of the theoretical views which it is desired to establish or refute. Experiments in raising crops, might also be conducted in a similar manner on the same farm, the results of which, should, in all cases, be determined by weight or measure (not by loose estimates, as is too often the case); and, in order to render these experiments valuable to the advancement of agriculture, they should always be accompanied by the best possible analyses of the soil on which they were tried, and of the crops produced on it.

SPADES.

This most important tool of the gardener varies in form and size, according to the work it is designed to execute.



FIG. 26.

The common *digging spade* is generally from 14 to 16 inches long in the plate, and 9 or 10 inches broad, narrowing down to the bottom at least half an inch. The spading of land with this instrument, produces the best results, from the thorough loosening and great depth to which the soil is stirred.

The *middling-sized spade* is about a foot long in the plate, and 7 or 8 inches broad. It is useful in digging any narrow compartments

and between rows of small plants, in flower beds, borders, &c.

The *scoop spade* has a semi-circular plate somewhat in the shape of a garden trowel. It is found very useful in taking up plants with balls of earth attached, in order to preserve them more firmly about the roots. Of these, and the other kinds, we have a great variety, from the best manufacturers, at prices varying from 75 cents to \$1.25 each.

EXPERIMENTS PROVING THE PROFITABLENESS OF THE COTSWOLD SHEEP.

ONE hundred and twenty-two lambs, weighing at the commencement of experiment 9,743 lbs., were found to consume, in 67 days, 98,088 lbs. turnips and 5,795 lbs. hay, from which we have the following, viz: that 1 lb. weight of lamb consumes in 67 days 10 lbs. $1\frac{1}{2}$ oz. turnips and $9\frac{1}{2}$ oz. hay.

The same lot of 122 lambs, weighing 9,743 lbs., consumed in 115 days 168,360 lbs. Swedes [ruta бага], and 10,065 lbs. hay, from which we find that, 1 lb. weight of lamb consumed, in 115 days, 17 lbs. $4\frac{1}{2}$ oz. Swedes, and 1 lb. $\frac{3}{4}$ oz. hay. This lot of lambs was composed of 41 Cotswold and Leicester cross breeds, 10 pure Leicesters, 30 Cotswold and Down cross breeds, and 41 pure Cotswolds. And the increase in mutton of each lot during the process of the experiment was ascertained. Founding a calculation upon the rates of consumption by each pound weight of carcass, we easily arrive at the exact proportional quantities which each lot should consume, if their powers of consumption are in proportion to their weights, which law, in fairness, may be assumed, until it is decided otherwise by experiments.

LOT I.—WEIGHING 76 lbs. PER SHEEP.

1 lb. carcass consuming 10 lbs. $1\frac{1}{2}$ oz. turnips in 67 days, each lamb in this lot weighing 76 lbs. at commencement, will have consumed $6\frac{1}{2}$ cwt. of turnips.

$9\frac{1}{2}$ oz. hay multiplied by 76 (the weight of lamb), do. 45 lbs of hay; add 17 lbs. $4\frac{1}{2}$ oz. Swedes multiplied by 76, equals consumption of Swedes, 115 days, $11\frac{1}{2}$ cwt. of Swedes.

1 lb. $\frac{3}{4}$ oz. hay multiplied by 76 equals 79 lbs. hay

From which we have the cost of keeping 26 weeks—

$6\frac{1}{2}$ cwt. turnips at 5d. . . .	£0	2s.	10d.
$11\frac{1}{2}$ cwt. Swedes at 9d. . . .	0	8	10
124 lbs. of hay at 3s. 6d. per cwt. . . .	0	3	10

	0	15	6
Deduct $\frac{1}{4}$ for manure,	0	3	$10\frac{1}{2}$

	0	11	$7\frac{1}{2}$
Add expenses of management,	0	3	0

	0	14	$7\frac{1}{2}$
Deduct mutton gained, 20 lbs. at 7d. . . .	0	11	8

Loss, £0 2 11 $\frac{1}{2}$

LOT II.—WEIGHING 67 $\frac{1}{2}$ lbs. PER LAMB.

Calculating as before—

10 lbs. $1\frac{1}{2}$ oz. turnips, multiplied by 67 $\frac{1}{2}$

(weight of lamb), equals 6 cwt. turnips consumed by each in 67 days.

9½ oz. hay multiplied by 67½, equals 40 lbs. of hay in ditto.

Add 17 lbs. 4½ oz. Swedes, multiplied by 67½, equals 10½ cwt. Swedes consumed by each in 115 days.

1 lb. ¾ oz. hay, multiplied by 67½ equals 70 lbs. hay in ditto.

COST OF KEEPING THIS LOT 26 WEEKS.

6 cwt. turnips at 5d.	£0	2s.	6d.
10½ cwt. Swedes at 9d.	0	7	10½
110 lbs. hay at 3s. 6d. a cwt.	0	3	5½

0 13 10

Deduct ¼ for manure, . . . 0 3 5½

0 10 4½

Add expenses of management, . . . 0 3 0

0 13 4½

Deduct mutton gained, 13½ lbs. at 7d. 0 7 10½

Loss, £0 5 6

LOT III.—WEIGHING 79½ lbs. PER LAMB.

Calculating as before—

10 lbs. 1½ oz. turnips, multiplied by, 79½, equals 7½ cwt. turnips consumed by each in 67 days.

9½ oz. hay, multiplied by 79½, equals 47 lbs. in ditto.

Add 17 lbs. 4½ oz. Swedes, multiplied by 79½, equals 12½ cwt. Swedes, each in 115 days.

1 lb. ¾ oz. hay, multiplied by 79½, equals 83 lbs. hay, ditto.

COST OF KEEPING THIS LOT 26 WEEKS.

7½ cwt. turnips at 5d.	£0	3s.	0d.
12½ cwt. Swedes at 9d.	0	9	2
130 lbs. hay at 3s. 6d. a cwt.	0	4	1

0 16 3

Deduct ¼ for manure, . . . 0 4 1

0 12 2

Add expenses of management, . . . 0 3 0

0 15 2

Deduct mutton gained, 22½ lbs. at 7d. 0 13 1½

Loss, £0 2 0½

LOT IV.—WEIGHING 87 lbs. PER SHEEP.

Calculating as before—

10 lbs. 1½ oz. turnips, multiplied by 87, equals 7½ cwt. turnips consumed by each in 67 days.

9½ oz. hay, multiplied by 87, equals 51½ lbs. hay, ditto.

Add 17 lbs. 4½ oz. Swedes, multiplied by 87, equals 13½ cwt. Swedes consumed by each in 115 days.

1 lb. ¾ oz. hay, multiplied by 87, equals 91 lbs. hay, ditto.

COST OF KEEPING THIS LOT 26 WEEKS.

7½ cwt. turnips at 5d.	£0	3s.	3d.
13½ cwt. Swedes at 9d.	0	10	1
142½ lbs. hay at 3s. 6d. a cwt.	0	4	5

0 17 9½

Deduct ¼ for manure, . . . 0 4 5½

0 13 4

Add expenses of management, . . . 0 3 0

0 16 4

Deduct mutton increased, 29 lbs. at 7d. 0 16 11

Gain in 26 weeks, . . . £0 0 7

RECAPITULATION.

	per head.
No. 1 Lot—Cotswold and Leicester loss in 26 weeks of	2s. 11½d.
2 " Leicester loss in 26 weeks of	5 6
3 " Cotswold and Downs loss in 26 weeks of,	2 0½
4 " Cotswold gain in 26 weeks of	0 7

It will be observed that the total result is fact—the history of a particular case; and the principle of dividing the quantity consumed in proportion to the weight of the carcass is the only postulate. From this estimate it is very evident that the Cotswold breed should not be rejected without proof being had, and that very conclusively, that they eat more food considerably than any other of the lots contrasted with, in proportion to their weight. In this experiment they beat the Leicesters 6s. a head, and the others 3s. 6d. and 2s. 6d.—*Agricultural Gazette*.

APPLICATION OF THE WATER RAM.

I NOTICE, that, in the February number of the *Agriculturist*, you advertise water rams for sale, and that, at page 51 of the same number, your correspondent, Mr. Bacon, who speaks in high terms of its applicability for raising water for the supply of farm buildings, gives an account of one of these machines, as being in successful operation about two miles from his residence.

Now, by what I have read concerning the water ram, or the "hydraulic ram," as it is called in some of the books, I understand that a portion of the water of any running brook or stream, when one or more feet of perpendicular fall can be obtained, may be forced by it to an elevation proportioned to the height of that fall. But I am at a loss to know whether one of the rams which you advertise, is sufficiently powerful to elevate water 70 feet in height from a small stream I have on my farm, with a ten-foot fall; and in which I should judge there is water enough to supply the calibre of an inch and a half pipe, through every month in the year.

By giving the information my case requires, you will greatly oblige

A SUBSCRIBER.

Dutchess County, N. Y., March, 1848.

The hydraulic ram, it will be recollected, may be applied to any spring or stream of water, where there is only a single foot of fall; but the greater

the fall, the higher the water can be raised, which will vary in quantity in proportion to the capacity of the ram, the size of the stream, and height of the fall.

To meet the case of our correspondent, he is informed that a pipe 40 feet long and of one and a quarter inch calibre, leading into the ram by a ten-foot fall, will deliver a constant stream, from a half-inch pipe, at an elevation of 85 feet. This information is given from actual experience, and may be relied upon as true.

THE STOCK HORSE—BLACK HAWK.

THE following figure is a portrait of Black Hawk, a celebrated stock horse, owned and kept at the stand of E. D. & N. H. Hill, Bridport, Vermont. He was bred by Mr. Mathews, of Durham, N. H.; Afterwards owned by Mr. Bellows, of Vt., and then

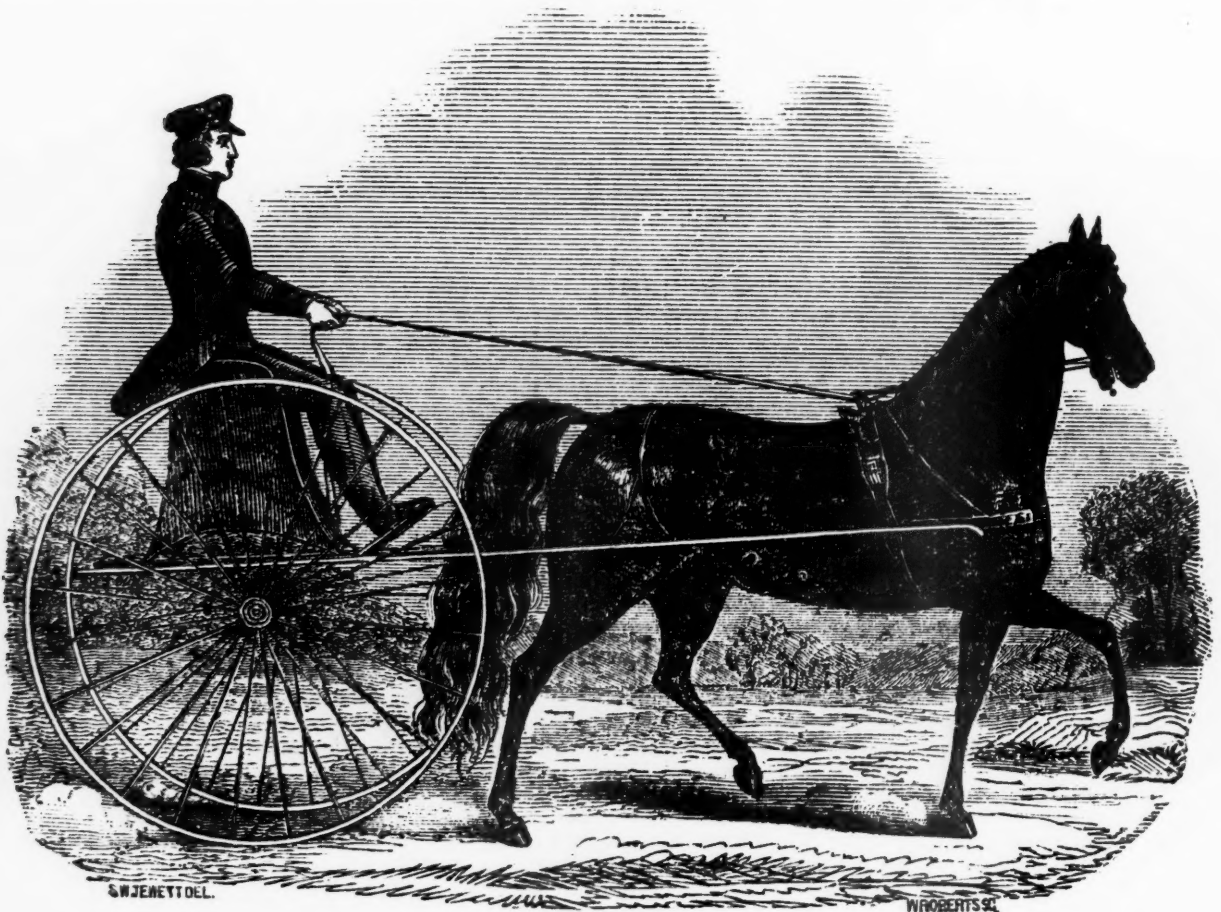
Course. Black Hawk won with ease the first heat in 2 minutes, 52 seconds; and the second heat in 2 minutes, 43 seconds.

He is of a jet-black color, stands 15 hands and one inch high, and weighs 1,024 lbs. He is thirteen years old and perfectly sound. Several of his colts, two years old, weighed last October, over 1,000 pounds. The colts generally turn out of a good size. They are good tempered, active, and remarkably easy to break in harness. They sell at better prices than any other colts in this section. Most of the premiums in this county are awarded to his stock, at the agricultural shows.

Black Hawk took the highest prize and a gold medal at the New York State Agricultural Society's Show, in September last, as the best stallion out of the state.

W.

Middlebury, Vt., February 12th, 1848.



BLACK HAWK.—FIG. 27.

by Benjamin Thurston, of Lowell, Massachusetts, who tried his speed at trotting on Cambridge Park, where he trotted two five-mile heats in 30 minutes, 30 seconds, and one mile in 2 minutes, 42 seconds.

He has been kept for several years expressly for his stock. He covered, in 1846, one hundred and thirty-four mares, and got all but twelve of them with foal. In 1847, he covered one hundred and thirty-seven mares. His season extended from March to December. Under these circumstances and without training, he was matched against Moss Grey, at the time of the New York State Agricultural Show, last September, to trot a mile in harness and repeat on the Saratoga Trotting

[We have had the pleasure of seeing this splendid horse, of which our correspondent speaks, and think highly of him. His action is very fine. The cut above does him injustice in not making him sufficiently strong in the quarters; nor does it give his neck the graceful turn which belongs to him. The legs in the cut are also represented too long. He is in fact a handsome horse of great substance, in pony form. Vermont has long been celebrated for its superior breed of roadsters, and we are highly gratified in being informed that the spirit of improvement in that enterprising state is on the increase, not only in horses, but in cattle, sheep, and their general system of farm management.]

HISTORY OF THE CAST-IRON PLOW.

First Improvement of the Plow in Europe.—Although Fitzherbert, in 1532, Heresbach, in 1570, Worlidge, in 1677, and Tull about 1703, wrote more or less on the subject of plows, we can find no record of any decided improvement in them till Joseph Foljambe, of Yorkshire, England, got out a patent for one in 1720. His first was made in the town of Rotherham, and hence its name, "Rotherham plow," which it has ever since borne. Previous to this, the plow was a great, heavy implement, consisting almost entirely of wood, and was of exceedingly rude construction. It required from four to eight horses to draw it, and even then, it did its work in a very slow and imperfect manner.

Figure 28, gives the reader an accurate idea of Foljambe's plow, which, so far as the general principles of form are concerned, shows quite a perfect implement; and one which modern mechanics have but slightly improved, except in using cast and wrought iron in the construction of its several parts. This implement was formerly made almost entirely of wood.

This plow measured from the end of either handle to the point of the share, 7 feet, 4 inches. Length of the beam, 6 feet. Length of the landside and share, as they run on the ground, 2 feet, 10½ inches. Height from the ground to the top of the beam where the coulter goes through, 1 foot, 8 inches. Weight of wood and iron work, 140 lbs.

With this plow, a man and two horses could turn over, in a superior manner, from one to one and a quarter acres of ground per day, of nine hours long.

The clevis of Foljambe's plow was of wrought iron. The coulter and share were of wrought iron, edged with steel. The mould board and landside were of wood, covered with thin plates of tough iron.

In 1730, a man by the name of Lummis, introduced the Rotherham plow into Scotland, when the improved Scotch clevis, as shown at *a*, in fig. 28, was made for it. A person by the name of Dalziel, a few years after, added another improvement, viz: that of the draft chain, which was fastened to the centre of the beam over the mould board to pull by, the same as in modern plows.

The Rotherham plows, from the time of Lummis, were somewhat varied in the form of their mould boards, &c., by different manufacturers, to adapt them for heavy or light soils. We saw them, when in England, thus slightly altered in their shape, for particular purposes.

The Cast-Iron Mould Board.—To James Small, of Berwickshire, Scotland, belongs the high honor of the invention of the cast-iron mould board, and the improvement of its shape for stiff, clayey soils. This was about the year 1740. In general construction, his plows were like the Rotherham; and they are still considered as a standard for the elements of good plow making.

Mr. Small was extensively engaged in the manu-

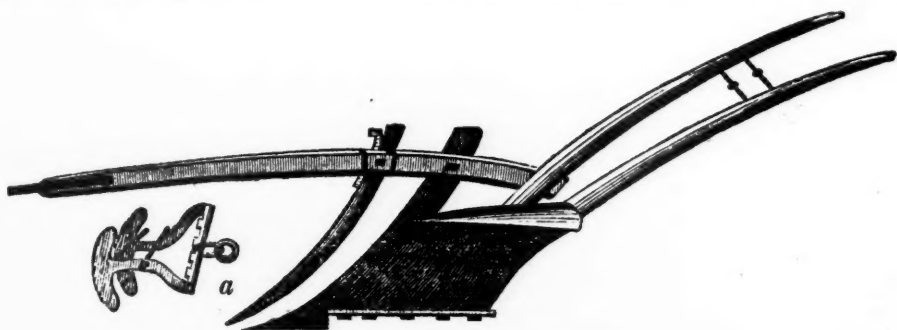
facture of plows and other agricultural implements, in Berwickshire, till his death, in 1793; and did much during his life time to spread his improvements throughout Great Britain.

The Cast-Iron Share.—The next most important improvement in the plow, was the invention of the cast-iron share, by Robert Ransome, of Ipswich, England. This he patented in 1785. In 1803, he obtained a second patent for case-hardening or cold-chilling the point and edge of the share. This makes that part of the share as hard as steel, and adds greatly to its durability. This, also, was a very important improvement.

The Cast-Iron Landside.—A plain farmer of Suffolk county, England, constructed the landside of the plow, of cast iron, soon after the invention of the share by Mr. Ransome.

The Cast-Iron Plow Complete.—Thus about the year 1790, the body or skeleton of the plow, comprising the mould board, landside, and share, made of cast iron, in three distinct parts, was well known, and in use in Great Britain. Wrought and cast-iron beams, handles, and all other parts have since been frequently substituted for wood, particularly in Scotland.

Improvement of the Cast-Iron Plow in America.—Without any knowledge of these improvements



ROTHERHAM PLOW.—FIG. 28.

of the cast-iron plow in Great Britain, about 1799, a highly enterprising and ingenious person, of Burlington, New Jersey, by the name of Charles Newbold, took up the plow with the view of improving it in the United States. On the 17th of June, 1797, he obtained a patent for the cast-iron body or skeleton, in one piece, complete. Subsequently, he made his plow with a cast-iron mould board and landside, and attached to it a wrought-iron share, edged with steel. In the year 1800, he repeatedly spoke of still further improving his plow, by substituting the cast-iron share. But having spent upwards of \$30,000, in his improvements and efforts to introduce it into use in the United States and elsewhere, without a corresponding return, he became discouraged and gave up the business.

Mr. Jefferson, late President of the United States, constructed a mould board on scientific principles, in 1798, and wrote an elaborate article on the subject.

Peter T. Curtenius kept plows for sale in the city of New York, as early as 1800, the shares and mould boards of cast iron, in separate parts. Who the manufacturer of these was, we are unable to learn.

In 1807, we believe, David Peacock, of New Jersey, obtained a patent for a plow, the mould board and landside of cast iron and in separate parts, the

share of wrought iron, steel-edged. He copied Mr. Newbold's plow in part, for the privilege of which he paid him \$1,000. Robert Smith, of Buckingham, Pennsylvania, obtained a patent for a cast-iron mould board, probably as early as 1804 to '6. This is said to have been constructed on mathematical principles, and was highly approved of. Mr. Smith wrote a good article on the construction of plows.

In 1814, Jethro Wood obtained a patent for a plow, the mould board, landside, and share in three parts, and of cast iron. He was familiar with Newbold's and Peacock's plows; of which his was a bungling imitation, and not near so perfect in form nor construction, as the old Rotherham plow, that had been in use in Great Britain, at least eighty-four years before.

It is said that the cast-iron plow, in three parts, viz: mould board, landside, and share, was in use in Virginia previous to 1814, and that Wood was aware of it; and that, through the Encyclopædias and other works, he also knew of the improvements in Great Britain. In any event, it is perfectly plain that he never ought to have had a patent conferred upon him for the cast-iron share, nor for any other improvements in the plow. He constructed *nothing original* in all he undertook. His only merit, so far as we can learn, was to assist in bringing the cast-iron share into more general use, sooner than it might otherwise have been done.*

Edwin A. Stevens, of Hoboken, New Jersey, took up the plow, in 1817, and for nearly four years devoted his ingenious talents to its improvement. He often tested it with an accurately-arranged dynamometer, and in various other ways, and against the best plows within his reach, and at length, succeeded in making it so perfect that it found great favor with the public, and has been a standing model for most of the best plows since manufactured in the United States. He informed us that he took his idea of a cast-iron plow from Mr. Newbold's invention.

Mr. Stevens patented his plow on the 23d of April, 1821, and was the first in this country to make use of the process of *cold-chilling* the base of the landside and lower edge of the share, which was also embraced in his specification for a patent.

In 1819, Josiah Dutcher, of New York, commenced improving the cast-iron plow, and has continued to do so to the present day. He lengthened and improved the shape of the mould board, and the method of fastening it to the beam; lengthened the share and added the shin piece; increased the width of the landside, and improved the manner of fastening it to the mould board, by lapping it outside and lengthening it to touch the share. He has also considerably improved the prairie plow. We regret to add, that, from the imperfection of the

patent laws, Mr. Dutcher has not met with that reward which he so highly merits for his great mechanical skill and numerous improvements in the plow.

Mr. Davis, of the District of Columbia, Mr. Bergen, of Long Island, and Mr. Moore, of Ithica, New York, and several others, whose names we have not been able to ascertain, are entitled to more or less credit for their improvements in the plow.

Mr. Joel Nourse, of the firm of Ruggles, Nourse, and Mason, of Boston and Worcester, Massachusetts, has done much in the construction of superior new plows, of many different kinds and sizes, and in their general improvement. The new dial clevis, and self-sharpening plow, of this eminent agricultural-implement manufacturing firm, are among the most important improvements in the plow which have been made within this century.

LETTERS FROM VIRGINIA.—No. 5.

I HAVE been spending a few days at the hospitable mansion of Commodore Thomas Ap Catesby Jones, near Prospect Hill, in Fairfax county, some ten miles from Washington. The good old Commodore is himself absent, having recently been assigned to the command of the Pacific squadron, on the coast of South America. Previous to his departure, I had made his acquaintance, and heard from his own lips a full account of the agricultural experiments on his extensive plantation, at Sharon, where he has resided for the last twenty years. As a naval commander, he ranks among the highest in that splendid galaxy which adorns our naval history. His first appearance on this theatre, was in December, 1814, when Admiral Cochrane made his formidable attempt on New Orleans, a few weeks previous to the famous battle of the 8th of January, 1815. When the fleet first hove in sight off the entrance of Lake Borgne, Lieut. Jones was in command of a division consisting of five gunboats, in the bay, with a force of twenty-three guns, and 183 men only. At daylight, on the morning of the 14th, the boats of the enemy were perceived advancing to the attack; and although the force opposed to him was utterly overwhelming, Lieut. Jones gallantly determined to defend his position. He accordingly made his arrangements to form the boats under his command directly across the channel, in a close line abreast; but the force of the current carried his own and one other much in advance of their companions, and exposed him with but eight guns and 62 men, to the whole force of the enemy, consisting of between 40 and 50 barges with forty-two guns and eight hundred men. The action immediately became general, and at noon the enemy was sufficiently near to make an attempt to board the boat of Lieut. Jones, which had become perilously exposed by its advance position. Three boats dashed at her, two of which were immediately sunk, and the attack repulsed. It was again renewed by four boats, which were also beaten off with a heavy loss. In repelling this last attack, however, Lieut. Jones was shot down, and the command devolved on a young midshipman (Mr. Parker), who kept up the defence until he was himself severely wounded and overpowered by numbers. "Although the loss of this division of gunboats," says Cooper, in his Naval History, "was a serious impediment to

* We observed a few months since, in a contemporary paper, a highly laudatory notice, on *hearsay evidence*, of Jethro Wood and his improvements in the plow, classing him with a Whitney and a Fulton! The writer of that article only shows one thing in his fulsome panegyric, and poor attempt to correct what he is pleased to term "striking inconsistencies," "serious errors" and "random assertions," and that is—*extreme ignorance* in regard to the plow and its improvements, both prior and subsequent to Jethro Wood's day. We advise him to let plows alone hereafter, and stick to his budding knife. For this advice, we shall not charge him \$100, nor \$50, nor any other sum which he has taken good care to finger whenever he did anything for the Transactions of the State Agricultural Society.

the defence of New Orleans, both the country and the service looked upon the result of the combat as a triumph. On the latter, in particular, the resistance made by Lieut. Jones and the officers and men under his orders, reflected great honor, for it was known to have been made almost without hope." The enemy's loss was 400 men in this single engagement. The subsequent services of Commodore Jones are well known to the country, and need not be recapitulated.

It is in his capacity as an agriculturist, that I design more particularly to speak of at this time. His farm consists of some six or seven hundred acres, favorably located, comprising a fertile soil, rendered so, chiefly by his unwearied and systematic exertions. When he first came into possession of it, twenty years since, it was utterly barren and unproductive; but by a judicious and continued process of scientific husbandry, by the free application of lime and other manures, and by the successive adoption of all the varied improvements of the day, it has become the pattern farm of the entire region—yielding fifteen to twenty bushels of wheat per acre—one hundred of corn [we presume this quantity means corn in the ear. Ed.] and other crops in proportion. In some seasons, three, and even four crops of excellent clover, averaging nearly two tons to the acre, have been secured; and in short, no pains for cultivation are spared to render every acre highly productive. Nearly opposite, the Commodore's brother, Adj. Gen. Jones, of Washington, has a farm of nearly equal extent, lying on the Potomac; and both gentlemen may be regarded as model farmers; personally supervising, so far as their official duties will permit, the operations of their plantations—ready to adopt every suggestion which promises improvement—and leaving nothing undone which may conduce to the renovation and fertility of their lands.

There are several excellent farms, as well as judicious and enlightened farmers, in this neighborhood, nearly all of whom attach great importance to the influence of lime in the amelioration and fertilization of their land. From twenty to fifty and even a hundred bushels per acre are frequently applied, and with the most marked and beneficial results. Except, when applied as a top dressing for clover or any of the grasses, plaster does not seem to produce any very decided effect; lime, however, when freely applied, seldom fails of securing abundant and remunerating crops. The liberal use of the ordinary barn-yard manures, is, of course, presupposed, as without this indispensable ingredient no farmer expects to secure a crop. The use of charcoal is gradually obtaining favor; and as the subject of scientific agriculture becomes better known, it will, in my judgment, prevail far more generally than it has hitherto done. The extensive pine forests in this region cannot, as it seems to me, be put to a better use than in furnishing this admirable absorbent of the nutritious gases of the atmosphere.

Since I have been here, I have visited great numbers of our northern farmers who have emigrated and settled in this neighborhood; and I find them all, without a solitary exception, in prosperous and favorable circumstances—delighted with the climate—satisfied with the fertility and

productiveness of the land—pleasantly situated—and pleased with the prospects before them. Capt. Hatch, formerly of Chenango, A. Lawrence Foster, of Madison; Mr. Coe, Mr. Childs, of Ontario; Mr. Barrett, Mr. Hull, formerly of Oneida; Mr. Taylor, of Dutchess; Mr. Sherman, of Connecticut; Mr. Loomis, Mr. Crocker, and several others, whom I have seen, and most of whom I had formerly known in New York, are in the "full tide of successful experiment," here in Fairfax; and it needs only a glance at their fertile fields and broad acres, their commodious farm buildings and well-filled granaries, their cheerful and contented faces, and healthy, happy families, to be satisfied that in exchanging your rugged clime for that of the "sunny south," they have not merely consulted their pecuniary well-being, but secured for themselves pleasant and agreeable homes, with all needed facilities for permanent comfort and enjoyment. In addition to this, they have been the means of introducing numerous valuable improvements into the agriculture of this region; they have brought with them northern implements, northern usages, habits, and customs; northern schools and churches; northern industry and economy; northern enterprise and energy; and ten years will not elapse before, in all probability, the infusion thus communicated, of northern restlessness and progressive improvement, will change the aspect of this portion of the Old Dominion, and render it, in fact, that earthly Paradise, which the Father of his country predicted it would ultimately become.

A NEW-YORKER.

MATCH BETWEEN ECLIPSE AND SIR HENRY.

I was much interested by the brief details in the last number of the *Agriculturist*, of your visit to Dosoris, the natal spot of Eclipse. I was also highly pleased to see Mr. Colden's account of his famous race with Sir Henry, recorded in your pages; but as there are some inaccuracies in that account, will you allow one who was intimate with all the actors in the exciting event, to make such additions and emendations as he believes are strictly correct.

First Heat.—When the horses had gone three and a half miles in the first heat, Eclipse commenced his run. He gradually gained on Sir Henry all the way around the turn. Crafts did not use his whip until three fourths of the distance round the turn; but had spurred Eclipse freely. As the horses were sweeping off the turn to the straight stretch home (Eclipse, with his nose at Henry's tail), Crafts disengaged his right hand from the bridle and commenced whipping Eclipse. Not being strong enough to hold him with one hand and whip with the other, he lost his balance, slipped back nearly upon the cantle of the saddle, and broke up the stride of Eclipse. At once Henry opened away from him, a length in the clear. At this crisis, Buckley, the trainer, shouted to Crafts, to drop his whip; doing so, he gained the bridle with his right hand, brought himself to the seat in the saddle, braced Eclipse up with a good stiff pull, touched him with his spurs, and on went his horse, gaining at every stride until he caught Henry at the stand, and was only beaten a neck out for the heat. Had Crafts not taken his hand from the

bridle, Eclipse must have won the heat, as Henry had nothing to spare when he crossed the score.

How different is all this from Mr. Colden's account. It was Buckley's opinion that Crafts lost the heat by the use of his whip. He was too young to have the requisite coolness. He was too eager and lost his self-possession. He was only one length behind Henry, the nose of Eclipse covering Henry's tail. When he gave up his pull, Henry at once gained two lengths in the clear, and yet in a quarter of a mile, was caught and only won the heat by a neck. Eclipse was the most footy on the straight sides, Henry around the turns.

Second Heat.—Mr. Colden is inaccurate here. His position down the course, a full quarter of a mile from the head, was so far away, that if the course had been clear of people, he could not have determined the position of the horses; but with the dense crowd upon it he could scarcely have seen them at all; or certainly not until they were some way down the back stretch, could any one at Mr. Colden's point of view have seen them. I have often talked this matter over with Mr. Buckley, the trainer of Eclipse, and his narration of both heats differs from Mr. Colden's. Mr. C. was an excitable man, and was so much interested in the race, that he could not sufficiently command himself to see correctly. At the period at which he wrote the account, he was on bad terms with the owners of Eclipse, and sought to disparage him. I speak of this as a matter well known, or otherwise I should not have mentioned it. The following is an accurate account:—

My authority had his view from the stand, where he could see the horses all around the course. It is also corroborated by Mr. Purdy, who saw the first heat, and rode the second and third.

After the end of the first heat, Mr. Purdy at once said, "I must ride Eclipse," and forthwith went to the stand, dressed himself, and weighed. On going to his horse to mount, he said to Messrs. Stevens, Livingston, Van Ranst, and others, "Eclipse has the foot of Henry in straight running; but I shall run him a trailing race, making Henry do all he can until two miles and three quarters, when I will commence my run for the lead; I will lap him at the stand, on finishing the third mile, and as my brush up the straight side will have taken the foot out of him, I will pass him at the top of the course in the fourth mile, and will be clear of him as we go on to the straight side on the back of the course; from thence home to the winning post, he shall never come near me." And so Mr. Purdy rode the heat. He found that he could run on to Henry in straight work, and drove him all the time. At no time was Henry (as Mr. Colden says) twenty feet from Eclipse, after they had gone one quarter of a mile. On every straight side, for three miles, was Eclipse at Henry's side, feigning to pass; while, at the turns, he dropped back, to freshen himself, and be ready to crowd Henry on the straight running. The severe work for two miles and three fourths had told on Henry; and now, at length, Eclipse's time had come. As the horses entered the straight run home, Mr. Purdy commenced his run for the lead. At this time Henry was a length in the clear ahead. Eclipse's brush was a steady one; at the draw gate he had reached Henry; Henry rallied desperately,

but Eclipse was too much for him; steadily he gained, with something in reserve; they neared the stand, Eclipse lying on the *outside*; they came to the stand and Eclipse lapped Henry to the saddle; they passed the stand, and Purdy, for the first time did not ease his horse on the turn; it was evident that the race was out; Eclipse gained at every stride, and now, for the first time in the race, had the foot of Henry on the turn. As they passed the stand, Eclipse was on the outside, and lapped Henry; he *never gave back* at all, but gradually gained thence to the head of the course, where he was a neck in the lead; the pace told not on him, but on Henry it did; and away went Eclipse, till on entering the straight run on the back side in the fourth mile, he was clear of him. Thence to the stand he was alone, with the race all his own, and beat Henry out some twenty feet in the clear.

It will be seen that Mr. Purdy ran the second heat as he had proposed. From this account, it will also be seen that Eclipse could not have passed Henry on the inside. And such is the fact; the narrator has been assured over and over by Mr. Purdy, that he did pass on the outside. And it may be asked what inducement had he to tell a falsehood. It was his right to pass on the inside if he could, subject to being run inside the pole, and thus be distanced. Had he passed on the inside, as it had been done safely, there could be no reason to conceal it. But Mr. Colden was the only man who ever asserted it. The heat showed a full and just appreciation of the powers of Eclipse, by Mr. Purdy; an admirable plan for the heat; and an equally admirable execution of his purpose.

The Third Heat.—This may be disposed of in a few words, and those of Mr. Purdy, now quoted from memory. He said, "Eclipse could have run the second heat in less than 7m. 49s., had it been necessary; and could have run the third in eight minutes easily, had Henry been able to do it. But Henry was overmarked by the race, and overweighted in the last heat. I soon found that Henry was done up, and I had only to go along moderately to win the last heat. Nothing was to be gained by a quick heat, and something might be lost. In the heat, Eclipse was strong and could more easily run away from Henry whenever called on. I ran to win, and should have been ten minutes in doing it if Henry had gone slowly enough to permit it. He at no time in the heat made any show of taking the lead. Eclipse always needed driving to get a run out of him; and yet I never punished him less in a heat than in this last one. I took the lead easily, kept it easily, and won easily, with Eclipse strong under me, firm in his mouth, and having a deal of run still in him."

And he added, "no horse could outlast Eclipse, none out foot him; and I never met one save Henry, who was so speedy, and he only on the turns." Eclipse, in his pace, went low or close to the ground, with a long stride, while Henry, a pony in make, gathered quick and had a short stride; of course, his short stroke was an advantage over Eclipse around the turns; but Eclipse's low, long stride, in straight going, gave him the foot of Henry. Had Mr. Purdy rode the first heat, Eclipse would have unquestionably won it without distressing him in the least.

LONG ISLANDER.

THE PRINCESS TRIBE OF SHORT HORNS.

THE following is an extract from a letter recently written by Thomas Bates, Esq., Kirkleavington, England, to Mr. Geo. Vail, of Troy, New York.

No animals of the Princess blood can now be had in England, *worth sending* to America, except what I have, descended from the Matchem cow, the grandam of your Wellington; and that tribe was only preserved by putting the Matchem cow to bulls of my Duchess family. Mr. Harvey, of Liverpool, instructed me to buy one for him, last year, for which I gave twenty pounds, but he soon sold her for less than prime cost.

I will give you the particulars of the breeding of the Matchem cow. I bought her at a public sale (and all the most conspicuous breeders were there); the price was £11. I bought sixteen other cows at the same sale, and not one of them bred anything good, except the Matchem cow. She had bred two calves, both indifferent, and was in calf when I bought her, to Young Monarch, a bull of Mr. Mason's tribe. They are now attempting to hold this tribe in high estimation in England, but they never were good, and never can be made good, let breeders try as long as they please. I put this cow afterwards to two bulls (one of Mr. Whittaker's tribe). Her first five calves were all very indifferent.

The Matchem cow's looks and character were all one could wish, white in color, with fine waxy horns. She was a very great milker, and was always, when in milk, very low in condition, and always milked through to calving. When she ceased breeding, having had ten calves, she was fed off at seventeen years of age, and in three months, she made an excellent carcass of beef; which was of beautiful color and well marbled, fat mixed with lean, which is a mark of excellence; and very few tribes of cattle are so, except the Duchess tribe or blood. Fine marbled beef can only be had from really good handlers, with good hair.

I let my tenants, the Messrs. Bell, have this cow after I had bought her. She leaped the fences and led all the other cattle astray; and Messrs. Bell desired me to let them sell her at Darlington, which I did, saying, "ask £12 for her, and do not take less than prime cost, £11. If you cannot get that bring her home again. In the evening, Mr. Bell came home with the cow, and on inquiry, I found he was once offered £9 15 shillings, and she stood at £11, and no one would give it. I asked him if he still wished to part with her; he said yes, at £11. I said I would take her at that price, if he wished; but would tell him beforehand, that I would put her to bulls having Duchess blood, and I was sure she would not breed a calf worth less than 100 guineas. After so telling him, he said he would be glad to have £11 for her, which I gave him.

I put her, the first two years, to my bull, Duke of Cleveland, and the last three years to my bull, Short Tail. The Oxford premium cow (the dam of your Wellington), was her first calf. I never saw calves so promising from the calving, and all the stock descended from them has been superior.

Now I have at different times bought near forty cows of the Princess tribe, the best of that tribe then left in England, *and this one*, the Matchem cow, *alone*, has been the only one that I have con-

tinued to breed from. I have never seen one of the Princess tribe after a cross of any other blood, than the Duchess tribe of bulls, ever breed well again. *They breed well to pure-bred Princess tribe of bulls*; but the purchasers of them have had no judgment and used other tribes of Short Horns. Now this fact speaks volumes of the danger of using blood not properly descended on both sides, sire and dam. Had the Princess family, sold at Sir Henry Vane Tempest's sale after his death in 1813, been properly preserved, and put to my Duchess tribe of bulls, they would now have been the best in England; but there is not one now good, except those I have from the Matchem cow, and her descendants—and *without one exception*, these have all been good, and all descended from them. Your Wellington is a proof; and I have now four calves from the own sister of my two Cleveland Lads, which I would not take two thousand guineas for, nor indeed sell at any price. Two of these were by my Duke of Northumberland, a bull and a heifer; the other two, also, a bull and a heifer, by my 2d Duke of Northumberland. The dam of these is now in calf to my 4th Duke of Northumberland.

I have been thus particular to let you know how highly I prize this tribe, the *only one* left of any value from the Princess tribe of cows.

THE RIDGING OR DOUBLE MOULD-BOARD PLOW.

THIS implement is sufficiently light to be worked by one horse, and is used for opening drills to plant potatoes, corn, &c. In plowing out between narrow rows, it throws the dirt both ways to the plants, and thus does the work of two plows. It is also very useful in digging potatoes, as well as a very convenient implement for various kinds of work, ditching, &c., and should always be kept on the farm.

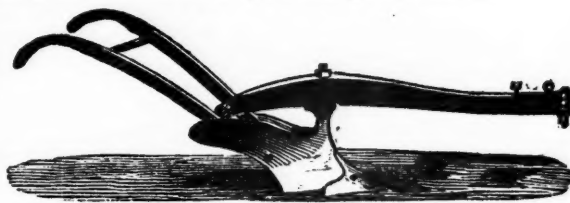


FIG. 29.—SIDE VIEW.

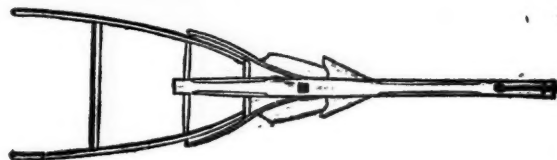


FIG. 30.—TOP VIEW.

No. 2 Double Mould Board.—Of same construction and use as the above, but one size larger. This is also used in furrowing for planting cane, and making light ditches. It has an extra point made, of an additional width, for the purpose of digging potatoes.

The Fluke or Double-Expanding Mould-Board Plow, for planting Sugar Cane.—This is a plow recently made, expressly for the use of sugar planters, by which a furrow is opened ten to twelve inches wide, and four to five inches deep.

MANAGEMENT OF HONEY BEES—No. 18.

The Age of Bees.—Much diversity of opinion has been expressed upon the natural age of bees, and perhaps the extreme length of time that they have in single, or particular instances survived, has never been fully demonstrated to an extent that may be properly cited, as proof of their exact longevity. But from certain facts, within the notice of every apiarian, we may safely come to this conclusion,—that they seldom, if ever, live to see the first annual return of their birth-day.

Of this fact, we may be assured, if we reason from analogy only, inasmuch as the insect tribes generally terminate their existence within a year; but we have stronger proof than this. We know that if a swarm of bees be placed where their limits of operation are unrestricted; for instance, in a very large hive, or in a room, that they do not throw off any swarms in such a case, but at the same time, the increase of bees, every spring and summer, is not less, and perhaps more than would be the case, had they been placed in an ordinary hive, where several swarms would be annually thrown off. This being a fact, it follows that if the life of the bee extended to two, three, or up to ten years, as some naturalists have asserted, that the aggregate number of bees accumulated in locations of unrestricted limits, would, in two or three seasons be enormous; but such is not the case. The general annual increase of every stock of bees (the term *stock* is given in their *second* year, and thereafter), we may fairly put down at 20,000. The usual number of bees in a hive on the first of March, may be estimated at from 2,000 to 5,000, according to the prosperity of the stock; if the bees exist longer than one year, or even 9 or 10 months, the following spring would find every stock with surplus room, to consist of all the increase of the preceding season, together with a portion, at least, of the old bees in existence the previous spring, making in the aggregate, say, from 20,000 to 25,000 bees. Now, instead of such a result, we invariably find about the original number in existence at the opening of each successive spring, and if we commence with 3,000, and the bees prosper for a period of ten years, giving an annual increase of 20,000, and not throwing off a single swarm during the whole period of ten years, producing in that time, the enormous number of 200,000 bees, yet on the first of March, of the season of their tenth year, we should find but our original number of 3,000 bees.

This is true of any number of intervening years, down to the second year of their existence. From my own experience, in this matter, I think I can safely say, that the natural age of the honey bee is within *nine months*. Like the human species, their days are cut off at all periods of life, and they, too, may truly say,—“In the midst of life, we are in death.”

The foregoing applies only to the age of that class of bees, termed the *workers*, the queen and the drones being a minor class, and their age should not be brought into the general question of the natural age of the honey bee. The queen lives beyond a year, but under two years. The drones generally die a violent death at the age of two, or three months, or a natural death at the age of about six months. Of the ages of the queen and the drones

much may be interestingly said, I think, but this is not the place to write a complete natural history of the honey bee.

I commenced these numbers upon the management of the honey bee, without the most remote idea of writing to the extent to which I have written. To while away the tedium of an unemployed hour, I hastily threw together the crude off-handed remarks of my first essay—I have in the same unprepared manner, without method or pre-contemplated arrangement, given to the public my subsequent remarks, without even giving the subject a thought, until, perhaps, the last hour allotted for their preparation; and I learn very unexpectedly that my crude essays have been read with some interest, and in consequence of the very favorable manifestations of approval of my feeble attempt at elucidating this subject, I shall prepare a work for the press, in which I shall endeavor to present the whole subject, in a methodical manner, embracing the substance of the numbers herein published, and such other matter as I shall deem of interest to the American bee master, of which there is an ample field.

I shall endeavor to render it a work that will lead the uninformed on the subject, from the beginning to the end of bee management, in a plain, definite, comprehensive manner; and to weave through its pages an interest that shall not only instruct its readers, but awaken the dormant feeling upon the value and science of the management of bees, that is too prevalent. Although it is not a place here to write a prospectus, yet I would say, that a plain intelligible work, fully adapted to the uses of the American people, has never yet appeared. The indefinite verbosity of foreign authors upon this subject, leaves the mind vague and unsatisfied. How far I shall succeed in supplying the vacuum, time will determine.

In consequence of this contemplated work, I now close my remarks in the *Agriculturist*; and I should be happy to receive communications from gentlemen in every section of the United States, detailing any experiments, or facts worthy of particular notice, that may have come under their observation, and address the same to me, No. 143 Water street, New York. This will, perhaps, enable me to give to the public, a work embracing important facts coming under the observation of different individuals in different parts of our own country.

T. B. MINER.

Ravenswood, L. I., April, 1848.

BENEFIT OF SALT IN THE FOOD OF SHEEP.—From some experiments made at the Agricultural Institute, at St. Germain, in France, it appears that the sheep, which gained in weight 34 lbs. a month, increased double that amount in the same length of time, when about one tenth of an ounce of salt was added to the food of each per day.

WHAT CONSTITUTES GOOD FARMING.—About 2,000 years ago, when the old Roman, Columella, was asked what constituted good farming, he answered “first, good plowing.” On again being asked what came next, he replied, “good plowing;” thus strongly impressing the occasion for good tillage over every other consideration.

MANAGEMENT OF CALVES.

It is almost certain for a *well-bred* calf to come *small*; the smaller the better, if well proportioned. I have seen numerous *large calves*, but never saw one that grew up to a good animal. This assertion can be endorsed by most of the best breeders in England, and in this country; in the former, the largest ones are generally selected and fattened for the butcher, at from six to eight weeks old.

I have reared calves in almost every way. They have run with the cows the whole summer. I have kept them on new milk for two months, then have given them half new and half skim milk. I have kept them entirely on skim milk; and on a little new milk and linseed jelly. At the present time, I am raising them on two quarts of new milk, night and morning, mixed with half a pint of linseed jelly. At three weeks old, I reduce the milk to three pints, and add another half pint of jelly. At five weeks, I give them a quart of milk only, and add another half pint of jelly. By this time they will begin to eat some shorts and hay. The best cow I ever bred, or ever had, was reared on skim milk; and many who saw her in the field with her round swelling paunch (amongst others of a similar character), thought she was nothing but a common calf, the whole of them looking to an inexperienced eye, like "common stock," but they all grew up superior animals.

If many of the "full-blooded," fat, bull calves had been killed, to rejoice over the reform of rich men's prodigal sons, this "humbaggery," in cattle, would not have been so effectually established, and the money spent in dash and show applied to procure *the best*, what a different picture would have been drawn. So long as some men have the credit of being called rich, and fat their mongrel calves to gain a great name, and have no care beyond it, they little imagine the tottering foundation they stand upon, and how soon they must be detected; the lenient hand of time will prove them but emptiness and vanity. They gain no superiority in this world, and are a laughing stock for the more enlightened class of the community. But enough of this, let them gallop on, it will not last for ever.

I firmly believe that calves brought up sparingly and economically, prove much better, and more profitable animals, than those that suck the cows. It is a more sure way to develop the frame, muscle, and milk vessels of the female. I have no doubt the secretion of milk is formed at a very early stage, and when the calf is sucking all the milk from a good dam, the frame is covered with fat and lean meat; and it appears very plausible to me that while this meat is increasing with the rich food, the vessels, for the secretion of milk, are diminishing, and such an animal must be extravagantly fed after leaving the dam, to keep up its condition. It is almost impossible to find food equal to what it had left.

There is nothing more deceiving than a fat bull calf, and thousands have been most meanly disappointed. If he is *left to chance*, he gradually degenerates in appearance; his frame, muscle, and sinews, all grow weaker, as the flesh disappears, and a young animal, so reduced, is much injured in constitution, and often produces disease and death.

How often have inexperienced men purchased such calves when their bad points have been covered; and *when poverty has exposed their true character*, they very justly condemn both the calf and its breeder, and become disgusted with what is called "blooded stock," for no other reason than because they have been imposed upon by a *large fat calf*.

A Hereford does not look so well when a calf, as a Short Horn, and I admit that a Short Horn shows better until after two years old; but the third year, a Hereford will develop itself and come out triumphantly; and no animal should go to the shambles, until three years old. There is no profit to either feeder or butcher, if killed at an earlier age, unless it is near a market, where butchers will pay a remunerating price for good veal. Cows kept on purpose to fat calves for market, has been a lucrative business. I know many farmers in England, who confine themselves entirely to this practice and feed from six to nine calves per year on each cow. Aylsbury market, in Buckinghamshire, is generally full of carts, loaded with young calves, destined for this purpose, and many a man gets a good living by keeping a horse and cart, buying them of the farmers as soon as dropped, and selling them to their regular customers, who constantly attend that market. It is the largest market for such young animals in England, being near enough to convey them to London daily. There is so much grass land in that neighborhood suitable for the business. I am decidedly in favor of having calves come in October, November, and December. At that time, skim milk can be kept sweet, and if they are kept in a warm place, they will do much better than in summer. In warm weather, your milk soon becomes sour, and then they will not drink it, or even if they do, it does them injury; it purges and weakens them; their hair stands the wrong way; they suck each others ears and drink each others urine, and frequently die of extreme poverty. If calves are well and economically brought up in the winter, and turned out to good grass in the spring, they thrive surprisingly, and the next winter, they will live on the same kind of food, as yearlings bred the previous spring, and will continue to do well until they arrive at maturity, with proper care. A bull can be turned out with them six months earlier than a spring calf; they will come in at two years and a half old with nearly as much constitution and vigor, and probably better milkers. I like to have heifers come in the first time, when they have a good bite of grass. If the calf is taken away at three days old, she will come in the second year two and a half months earlier, the third at the right season, and the butter made from the cows, in winter, will fetch from three to six cents per pound more than tub butter. I sold mine for 18 to 25 cents, in Albany, when tub butter was only worth 12½ to 14 cents; and it is less trouble to make it in winter than in summer. Much more milk and butter can be made from hay, that is cut young, than that left to grow to maturity. But I will send you an article on that subject at some future time. WM. H. SOTHAM.

Black Rock, January 1st, 1848.

FACTS and not theories, or opinions, are the things most wanted for the improvement of agriculture.

Condensed Correspondence.

EXPERIMENT WITH THE POTATO.

OUR veteran friend, Judge Ford, of Morristown, N. J., informs us that he planted in his garden on the 3d of May last, without any manure, 15 Mercer potatoes, apparently sound; and that on the 27th of the same month, some of them had thrown up shoots an inch above the ground. The tubers, producing them, were carefully taken up, from which 60 sprouts were plucked, and then restored to their bed, in order to produce more. These sprouts were planted upright, with their tops half an inch below the surface, in conical hills or mounds of earth, a foot high, one to each hill, three feet apart, and containing no manure.

On the 3d of June, 60 sprouts more were taken off and planted in another row, three feet distant from the one named above, and treated in every respect the same, the tubers which produced them, being returned again to their bed, where, without further care, they were suffered to grow. The result, was, that the old tubers produced a great number of exceedingly small ones, each of which was half destroyed with putridity and rot; whereas, not one of those grown from the sprouts had the slightest sign of disease at the time of digging them, on the 23d of September, and had not shown any up to the middle of February. No hill gave more than one potato of the size of a goose egg; but a considerable number of them were quite too small for the table.

Two other rows were also planted with Mercers, from the same parcel of seed, within the distance of 20 feet from those described above; and before their young tubers had acquired half the size of a hen's egg, in spite of the application of lime and fine charcoal, and the cutting off of their tops, they became infected with the disease, and a fourth part of them had to be thrown away.

The treatment of the sprouts, Judge Ford thinks, was improper in the following respects:—1. Only one solitary shoot was set in a hill, instead of four. 2. The mounds were so elevated, that, by shedding off the rain and dew, their sides were exposed both to the influences of the sun and wind, and consequently became too dry to nourish the plants. 3. If there was no disease in the sprouts, as he supposes there was not, a liberal dressing of manure might have been applied to the ground, and likewise in the hill, and a large yield of sound potatoes, he thinks would have been raised.

PROPOSED HEDGE PLANT.

WE have received a communication from Mr. S. D. Ingham, of New Hope, Pa., accompanied by a small package of the seeds of a species of thorn (*cratægus*), from the Alleghany range between the White and Red Sulphur Springs, in Virginia. His attention was first drawn to this plant, by observing that, wherever the cattle had browsed off the tops, in an old field, a remarkably close and bushy growth was formed without any other trimming. The stem of each bush, he represents to have been as thick as his wrist, and capable of making from 2 to 3 feet of very thick hedge.

The seeds, or haws, he says, can be obtained in

great abundance at the last-named place, and if an easy mode of propagating them could be devised, he thinks that this thorn would make an excellent hedge plant. The package he has sent us, he wishes to be placed into the hands of some one for experiment, with the view of learning the best mode of propagation. If any amateur, or experienced nurseryman, is desirous to make the trial, a part or the whole of the seeds are at his disposal. We would suggest that they be treated in a similar manner as recommended for those of the Osage orange, at p. 105 of the present number; and for future sowing, when the haws are ripe, to mix them as soon as gathered, in a heap of earth, where they must remain for a whole year, turning them over several times in the course of that period, in order to facilitate the decomposition of the pulp and husk. They may then be separated from the earth and sown in beds of finely-prepared soil, and covered to a depth of about one fourth of an inch. Thus treated, when sown in the autumn of the second year, they will vegetate the following spring.

CULTIVATION OF POTATOES.

MR. JOHN W. BAILEY, of Plattsburgh, N. Y., in an interesting article on the culture of the potato, which we regret to condense, for want of space, recommends that all lands, designed for that plant, should be thoroughly drained, so that water will not stand upon any part of the field; that a good soil, inclining to sand, gravel, or loam, is to be preferred, avoiding clay, and even a clayey subsoil, if possible, as they do not permit the water to pass off so soon as required. The ground, he says, should be plowed and planted as early in the spring as practicable; and the potatoes dug as soon as they are ripe; after which they should be put in a dry and airy place, and kept until cold weather makes it necessary to remove them to the cellar, where they should be kept as cool as possible without danger of freezing.

In the selection of seed, he makes choice of the hardiest varieties, and for the last two years, he has applied lime, plaster, and wood ashes, in the hill, at the time of planting, with good results.

HOT LYE A REMEDY FOR THE PEACH BORER.

—Mr. J. S., of Stockholm, N. J., writes us that he heard of a well authenticated case, in which a woman, laboring under the maddening influence of jealousy, deliberately took an axe, and levelled to the ground, a fine young orchard she had helped to plant; and being intent, also, upon the destruction of some favorite peach trees, then beginning to decay, she prepared a strong lye and poured it, while hot, about their roots. But what was her surprise, when she found that the trees put forth, flourished, and bore more fruit that year than they were ever known to do before.

CARE OF STOCK.—Mr. W. G. B., of Newark, N. J., recommends that pigs have a warm place and a clean dry bed. "A pig," he says, "does not love dirt for dirt's sake, and will thrive much better if kept clean." He further says, "A dirty hide will waste a cow's flesh faster than food will add to it. * * * Curry cows every day and keep them perfectly clean, for filth and thrift are ever opposed."

Ladies' Department.

TO THE YOUNG.

"Have I not seen thy needle plied
With as much ready glee
As if it were thy greatest pride
A seamstress famed to be?
Did I not eat pies, puddings, tarts,
And bread, thy hands have kneaded?
All excellent, as if those arts
Were all that thou hadst heeded."

A WIFE, who has had some experience, would suggest to the young ladies of the present day, the very great importance of some practical knowledge of housekeeping, without which, no woman, who is at all conscientious, can be happy, either as a wife, or a mother. So much of the actual comfort and happiness of those dearest to us, depend upon the trifling everyday occurrences to be met with in all families, that it behooves every woman to endeavor to possess that information most necessary to ward off many of the petty annoyances by which housekeeping is surrounded. The self-conceit of servants, who think they are better informed than their mistress, and are shrewd in finding out how far she can venture to direct without displaying her own ignorance, is one of the most prominent evils of the present time. Very few men, are there, of common sense, who would not willingly part with some of the useless accomplishments of a wife, for the very unfashionable one of being a good housekeeper—not that I condemn any accomplishment which would tend to make a woman more refined, more pleasing, or add one ray of intellect to her brow. But I do condemn the false idea entertained by many, that a lady is not a lady, when she condescends to take an interest in household arrangements, upon which the happiness of her family and the well-being of all around her depend.

How proudly, and how cheerfully goes that man forward to his daily business, who is confident that he leaves behind him, in the partner of his joys and cares—one who has his interest and his happiness so deeply at heart, that all other things fade in comparison, and that as surely as he returns at night, so surely will he find a well-ordered home to receive him. And let him be a professional man, a mechanic, a farmer, or an artisan, there is a charm about such a home, that few can resist, and fewer still, will not appreciate and love. I appeal to all wives—Is it not worth a trial? Is it not a noble cause? To see

Our abode,
The tabernacle of our earthly joys
And sorrows, hopes and fears, this home of ours—
Is it not pleasant?

If a pie or pudding tastes better to a parent or husband when made by the hands of a daughter or wife, let no lady suppose (fashionables and exquisites to the contrary notwithstanding), that she at all detracts from her character, if she is able to enter her kitchen, where an ignorant servant wishes a minute direction regarding anything which is to tend to the comfort of the family. Let no lady suppose she at all derogates from her character by being able to give the desired information. If a merchant's, grocer's, or baker's bill comes in, let no lady think she demeans herself, by examining it; for sometimes mistakes will happen, with

the best intentions, and if she neglect so great a duty, who is to attend to it? Who is to be answerable for waste and extravagance? Surely not the poor servants, who are unfortunate enough to have careless mistresses—surely not the husband, or father, whose employment calls him elsewhere—surely no one, but the female head of the family, be she mother, daughter, or wife. On her rests the responsibility, and it is a responsibility so great to those who feel or think rightly, that I would have all the young daughters of America, fully aware of its importance; and all young wives feel that certain hours of the day must be devoted to the plain, practical realities of everyday affairs. Happy is the woman who feels this a pleasure as well as a duty. No manners need be less refined; no accomplishments less brilliant; no mind less cultivated; no heart less happy; no home less attractive; and surely no husband less devoted, nor father less proud, from the fact that the wife, or the daughter, is a first-rate housekeeper. And such can all be, who will make the effort and persevere in it. If difficulties arise, conquer them. If the temper be tried, bear it patiently as may be; but of all things do not give up, nor be disheartened at a few disappointments. In a very short time, the mountains will dwindle into molehills; and take the word of a happy wife—you will be amply repaid for the exertion you have made. A FRIEND.

THE EFFECTS OF COSMETICS ON THE SKIN.

THAT your excellent correspondent, E. S., in the March number of the *Agriculturist*, does not write understandingly when she speaks of rouge, as a beautifier of the skin, is evident; or she would not have intimated that this harmless substance cannot be employed without injury to a lady's complexion. Any intelligent physician, chemist, or apothecary, will tell her that the coloring matter of the true rouge for the toilet is nothing but an extract from safflowers, and "is the only article which will brighten a lady's complexion without injury to the skin." I am perfectly aware that there are several articles sold under the name of "rouge," which are highly improper to be used. Among these I would name the following:—

1. *Rouge Indienne* (terra persica), or Indian red, imported from Ormuz. 2. *Liquid Rouge*, the red liquid left from the preparation of carmine; or a solution of carmine, in a weak carbonate of potash water; or of pure rouge dissolved in alcohol and acidulated with strong white vinegar. 3. *Rouge de Prusse*, or burnt yellow ochre. 4. *Spanish Lady's Rouge*, a floc of cotton or lint, wet with an ammoniacal solution of carmine, and dried. All of these preparations should be avoided, and none used but the genuine extract of the safflower.

It may appear strange, Mr. Editor, to the Eutawah correspondent, as well as to many of your readers, that I should have recommended the application of prepared magnesia, or even finely-powdered starch, and rouge, as beautifiers of the skin; but when they reflect that thousands of our countrywomen, are daily using, and will continue to use a great variety of pernicious compounds, sold under the enticing names of "pearl white," *creme de rose*, &c., for the purpose of preserving or restoring their

beauty, they cannot but agree with me in saying that, "of all evils, choose the least;" or in other words, if cosmetics are to be used, employ those which do the least harm. This is the only apology I have to offer for what I have written, and here I shall let it rest. C.

ALMOND PASTE FOR THE TOILET.—Pour boiling water upon a pound of fresh almond kernels, then throw them into cold water, and slip off the skins; beat them fine in a marble mortar, with a sufficient quantity of distilled rose water, added gradually, to prevent them from becoming oily; mix in a quarter of a pound of finely-drained honey, and keep it in wide-mouthed bottles, well corked. After the skin has been washed with soap, or exposed to the keen, frosty air, a little of this preparation, well rubbed on, restores the pliancy and comfortable feeling; and it is really as harmless as it is pleasant. E. S.

Eutawah, March, 1848.

Boys' Department.

AGRICULTURAL CHEMISTRY.—No. 1.

Boys, it is my design to write you some letters on the subject of chemistry, as applied to agriculture. I hope you will not be prevented from giving attention to what I shall say by the supposition that the subject is one beyond your comprehension, and of little consequence; for I trust to be able to explain the science in such a manner as to make it perfectly intelligible, and if you suppose there is little advantage in this kind of knowledge, I hope, also, to be able to convince you to the contrary. It is a common complaint among farmers, old and young, that much of the matter of agricultural journals is too scientific; they find many words of which they do not know the meaning, and which, perhaps, are not contained in common dictionaries; consequently they are unable to derive any instruction or advantage from some of the more learned and valuable essays. My object in these letters will be to simplify the science, so that all who read can understand; but before proceeding to scientific details, it is important that you should have some idea of the advantage and utility of this kind of knowledge, and know what end is to be gained, and what practical benefits are to be derived from it. I shall, therefore, in this letter, confine myself to some general observations.

Agricultural chemistry, you know, treats of the nature of plants, and the best methods of cultivating them. By *plants*, I mean all vegetation. There are two great sources from which all plants and trees derive their support, and they can derive it from no other; the one is the *atmosphere*, the other the *soil*. You, will, therefore, bear in mind, that no vegetable can contain a particle of matter which has not before existed (though perhaps in a very different form), either in the air that surrounds it, or the soil where it grows. If then, we can discover what plants are composed of, we shall know what kind of food or nourishment they require. Among domestic animals, you have observed that different species require, and indeed, must have, different kinds of food; and in some cases it is literally true, that

"what is meat for one is poison to another." Now it is precisely the same with vegetables; and the practical advantage to be expected from agricultural chemistry, is, the knowledge which shall enable you to adapt your crops to your soil, and to apply to each kind of grain, you cultivate, its appropriate manure. In the March number of the *Agriculturist*, p. 87, you will find an excellent illustration of the advantage of science to agriculture. The same experiment which Mr. Colt tried with the grape vine, may be tried with any other plant, and experiments with different kinds will show that their wants are as various as their species.

Much knowledge, it is true, has been gained by experience; but science can furnish a vast deal more. Those who rely wholly on the former will often find themselves entangled in difficulties, and meet with disappointment where they were most confident of success; while those, on the other hand, who confide in science [not quackery], will have a guide which can never lead them into error. You will be more convinced of the importance of chemistry to agriculture as you proceed, and you will often wonder why the subject has not received more attention from those who are indebted to the soil they till for their support. But a spirit of inquiry is awakened. People are becoming distrustful of the antiquated notions of their ancestors, and are beginning to test the soundness of old dogmas by science and experiment—two powerful engines, which are destined to give origin to greater advancements in agriculture than have ever yet been made.

I would say, therefore, to every farmer, and especially to the young, neglect no opportunity of enlightening the mind on this all-important subject. The basis of the knowledge you most need, and the path to that eminence in your calling to which you aspire, lie in the discoveries and teachings of chemistry. It will be my endeavor to make you familiar with some of the most essential parts of this science, and to prepare you for receiving still further benefits from more elaborate and learned productions. I shall omit many details, and often state facts without explaining the process by which they have been obtained. Should your curiosity be awakened to know more on this subject than I shall communicate, I would refer you to Petzholdt's *Lectures on Agricultural Chemistry*, published by Greeley & McElrath, of New York, and afterwards to the works of Johnston, Liebig, and Turner.

I told you that plants derive all their food from the air and the soil; you perceive, therefore, how important it is to understand fully the nature of these two great sources of vegetable life. In my next letter, I shall make you acquainted with the ingredients which compose the air.

I would here say, that it will be necessary for me occasionally to enter into details, the use or bearing of which you may not at first discover; still I would request you not to pass anything by with indifference; for it is not my design, nor will my necessary limits permit me to introduce matter which has not a close connexion with the end in view, or which is not of sufficient moment to be worth an effort to remember.

J. MCKINSTRY.

Greenport, Columbia Co., N. Y.
March 1st, 1848.

FOREIGN AGRICULTURAL NEWS.

By the arrival of the Steamer Britannia, we are in receipt of our foreign journals to 12th of February.

MARKETS.—The only important change which we notice since our last, is a rise in cotton of $\frac{1}{4}$ d. per lb.

Money was not worth more than 3 to $3\frac{1}{2}$ per cent. on the best securities. A great want of confidence still prevailed throughout Europe. Large failures had nearly ceased, and they were looking for a gradual improvement in business.

Salt Applied to Asparagus.—Salt should not be applied to asparagus at the time of making the beds; but when the plants are growing—frequently, and in small doses. Water no saltier than that of the ocean is what is recommended.—*London Agricultural Gazette*.

Comparative Value of Human Food.—According to Dr. Lyon Playfair, at London prices, a man can lay a pound of flesh on his body with milk, at 3s.; with turnips, at 2s. 9d.; with potatoes, carrots, and butchers' meat, free from bones and fat, at 2s.; with oatmeal, at 1s. 10d.; with bread, flour, and barley meal, at 1s. 2d.; and with beans at less than 6d.

An Old Raven.—The "Journal de Rheims" says that the other day, a gentleman captured a raven, round the neck of which was a silver plate, with an inscription in English,—"This raven, caught by Capt. Duncan, of the Scotch Guards, in the garrison, at Rheims, was set at liberty, Jan. 7th, 1643."

Wine Making in New South Wales.—Such is the extent to which vineyards have been planted in New South Wales, that a single landowner, Mr. McArthur, has made, in one year, 17,000 gallons of wine, some of which when bottled, has been sold for 20s a dozen, at Sydney.

A Splendid Market at Paris.—The municipality of Paris is about to build a splendid central market, which will cost 20,000,000, francs (\$3,700,000), and will require ten years for its erection.

Growth of Cotton in India.—We understand advices from India have been received at Manchester, stating, on the authority of the government collector of the Dharwar district, that there are at present at least 20,000 acres of New Orleans seed cotton under cultivation in that district; and that, had it not been for the deficient fall of rain last monsoon, there would have been at least 60,000 acres under cultivation. The cultivation of cotton is also extending fast into the Nizam's country.

Amount Paid for Dutch Butter by England.—England pays to Holland, Belgium, and Holstein about \$3,500,000 per annum for butter.

Amount of Grain Raised in France.—France produces annually 231,000,000 bushels of wheat, and 369,600,000 bushels of inferior grains.

Fecundation of the Eggs of Poultry.—If any of your readers have seen a hen, in full laying, dissected, they might have observed that the ovary was composed of a mass of yolk bags, resembling a bunch of grapes, but with this difference, that the yolk bags varied in size from an inch in diameter down to a pin's head, and often smaller. Now, that these yolk bags, hardly visible themselves, should be capable of having their contents fecundated is contrary to reason, and has not been allowed by any physiologist that I know of.

In the case of the bee, there is appended to the oviduct a reservoir or sac, which, when once filled, is sufficient for the vivification of all the eggs in the ovary; this taking place as the egg passes the mouth of the sac in its course down the oviduct. Birds, not being furnished with a similar apparatus, cannot have more than a few of the germs fecundated at a time—only those that are in a sufficient state of forwardness; but where to fix the limit, how many days before lay-

ing, can only be ascertained by experiment. My belief is, that two or three of the first might prove fruitful; but this your correspondent may rest assured of, that no hen could in the normal state lay 100 or 150 eggs from which chickens might be reared after the death of the cock or cocks, as those eggs which do not possess an embryo before his death cannot do so after. Those, who believe and assert the contrary, must have been deceived by the unseen visits of some neighboring cock, which, regulating them according to the known hours of the master's inspection of his hens, eluded his prejudiced gaze.—*Gardeners' Chronicle*.

Effects of Turnips on Ewes with Lamb.—Three years ago, when turnips were very abundant, a flock master of Berwickshire, Scotland, allowed his black-faced ewes (Cheviots), which are seldom in high condition, nearly as many as they could eat, for about eight weeks before lambing, and the consequence was, that he lost a considerable number of ewes from this overfeeding, having caused the horns of the tup lambs to grow so much, that some of them never could be born; and others were so much injured that they inflamed and died. The horns of the new-born lambs, in some instances, were three inches long; but in general they were not more than two. This exuberant growth of horns was doubtless owing to the excess of phosphate of lime, which existed in the food of their dams, as it is well known that this substance, in the turnip, largely abounds.

The Mode in which Sulphuric Acid Increases the Fertilizing Influence of Bone Dust.—It has been found that bones, in a heap with moistened ashes or sand, ferment so intensely, as soon entirely to lose their structure and form. In this state they have acquired greatly more power as a manure. In one case 17 bushels of bones yielded a crop of $13\frac{1}{2}$ tons of turnips per acre, while the same crop was obtained from half the quantity of bones that had heated in sand. In another case $14\frac{1}{2}$ tons of turnips followed the application of $25\frac{1}{2}$ bushels of bones, while $12\frac{1}{2}$ bushels heated in sand yielded a crop of upwards of 17 tons per acre. In the former case $4\frac{1}{2}$ bushels of "sulphated" bones produced $14\frac{1}{2}$ tons of roots, and in the latter $7\frac{1}{2}$ bushels of "sulphated" bones produced a crop of $14\frac{1}{2}$ tons. The explanation is this. In the course of it, let it be assumed that the value of the bones, as a manure, is mainly due to the phosphorus with which they furnish the plant. The chief constituent of bone dust is phosphate of lime, a compound of phosphoric acid and lime, which is insoluble in pure water, and which, therefore, if rain water were pure water, would be useless as a manure. Lime will unite with two different proportions of phosphoric acid; and though as phosphate of lime it is insoluble, as biphosphate (that is, united with a double quantity of phosphoric acid), it is very easily soluble in water. And the advantage of adding sulphuric acid to bones is simply this—that it converts the insoluble phosphate which they contain into the soluble biphosphate. From one portion of the phosphate of lime it detaches the phosphoric acid, and, taking its place, unites with the lime thus isolated, forming gypsum, while the phosphoric acid which it has detached combines with another portion of phosphate forming a biphosphate. Bone earth thus treated, therefore, contains phosphorus in a soluble form, and the turnip plant has an abundance presented to it by every shower which penetrates the soil in which the manure has been deposited.—*Agr. Gazette*.

Starch from Diseased Potatoes.—Starch made from diseased potatoes, it is said, has been found to injure silk goods when used to stiffen them. The goods are covered with spots, which, when examined through a microscope, present the same fungus that is found in the diseased potato.

Editor's Table.

THE CAST-IRON PLOW.—A bill has recently passed the Senate of the United States, and is now pending in the House of Representatives, to extend the patent of Jethro Wood, for seven years, which he obtained in 1814, and renewed in 1819, and again in 1833, for fourteen years, claiming to have invented the cast-iron plow share, &c. This bill proposes to grant to the heirs of Jethro Wood, the privilege of exacting *fifty cents* from the manufacturer, for every cast-iron plow made in the United States, for seven years after the passage of said bill.

As there are about four millions of farmers and planters at present in the United States, and as each would require on an average at least one plow every four years, this privilege would be worth **HALF A MILLION OF DOLLARS ANNUALLY**, all of which would be taken from the hard earnings of the planter and farmer! And what makes the matter more unjust, is, that a large share of the interest of the heirs of Wood in this patent, has been purchased for a mere song; thus nearly the whole benefit of it will inure to a company of greedy speculators.

But Jethro Wood, as is shown at page 121 of this number of our paper, was not the original inventor of the cast-iron plow share, nor did he ever improve the plow in the slightest degree; he was consequently entitled to no merit in this thing, and much less to a patent; and had the facts of the case been known by the Commissioner of Patents, in 1814, he would not have granted him one, nor renewed it in 1819, nor would Congress have extended it for fourteen years in 1833; neither would the United States Court have confirmed him in it after it had been granted.

With these facts before them, the public will now see how great an injustice it would be for Congress to extend the patent of Jethro Wood, and give his heirs, or rather a company of *greedy speculators*, the privilege for seven years, of exacting fifty cents per plow from every one engaged in their manufacture. Jethro Wood has enjoyed the benefit of his patent for thirty-three years, which we think quite enough. During this time he and his family have drawn large sums from the public, and it is about time now, that these exactions should cease.

The Legislature of New York and the State Agricultural Society, have passed resolutions against the passage of this bill, and have requested the New York Members of Congress to vote against it. We observe, also, that the measure is generally denounced by the press throughout the country.

We hope every one will read our articles on this subject with attention, and aid in spreading the facts before the public; for the hard-working farmer and planter ought to be immediately apprized of what so vitally concerns them. We invite all those who are opposed to injustice and special privileges, to assist in the defeat of so iniquitous a measure, and thus defend the farmer's rights.

HOVEY'S FRUITS OF AMERICA.—The fourth number of this excellent work has been received. It treats of the Early Crawford Peach; the Doyenné Boussock Pear; the Tyson Pear; and the Red Astracan Apple. Each number contains four splendid engravings representing the twigs, leaves, and fruits, printed in colors, with numerous wood cuts denoting the appearance of the trees, outlines of fruits, &c. The descriptions, accompanying these plates, are more accurate, more complete, and consequently more valuable to the American fruit grower, than those in any other publication with which we are acquainted. The illustrations, also, are sufficiently well execu-

ted to identify the kinds of fruit described, and that is all we need.

PLUM TREES KILLED BY SALT.—We understand that Judge Cheever, of Saratoga county, N. Y., seeing a statement in some paper, that salt was an excellent fertilizer for plum trees, killed severable valuable ones the past season, by scattering a gallon of that substance over the roots of each tree.

KEEPING BEEF FRESH.—In preserving beef, the *ribs* will keep longest, or five or six days in summer; the middle of the *loin* next; the *rump* next; the *round* next; and the shortest of all, the *brisket*, which will not keep longer than three days in hot weather.—*Combe.*

TO PRESERVE WATER IN SEA CASKS AND CISTERNS.—It is said that water may be preserved quite pure, either on long voyages, or in cisterns, by the addition of about 1 lb. of black oxide of powdered manganese to 1,000 gallons; stir it well together, and the water will lose any bad taste it may have acquired, and will keep for an indefinite length of time.

DISEASES OF CATS.—Cats are seldom ill, except from cold, which generally gets well without any particular care being taken of it; but where they have any serious disease, it generally proves fatal.—*Mrs. Loudon.*

HOW TO ENLARGE VEGETABLES.—A vast increase of food may be obtained by managing judiciously, and systematically carrying out for a time the principle of increase. Take, for instance, a pea. Plant it in a very rich ground. Allow it to bear the first year, say half a dozen pods only. Remove all others. Save the largest single pea of these. Sow it the next year, and retain of the produce three pods only. Sow the largest one the following year, and retain one pod. Again select the largest, and the next year the sort will by this time have trebled its size and weight. Ever afterwards sow the largest seed. By these means you will get peas (or anything else), of a bulk of which we at present have no conception.—*Exchange Paper.*

A NATURAL COW DOCTOR.—In the case of Maynard vs. Litchfield, to recover damages for the loss of a valuable cow, the Boston Daily Advertiser reports one witness to this effect:—"The testimony of this witness (Dr. Stoddard), was as follows:—"I live in Scituate, and am sixty years of age. I am a cow doctor. I have followed the business these forty years. I doctor sheep, hogs, and horned critters. I set broken bones, joints, &c. I never read no books on critters. I took the business up kind o' nat'ral. I doctor in Scituate, Hanover, Hanson, and all about. Mr. Maynard and Mr. Litchfield came to me about this cow. I told them to give her a pint and a half o' castor ile, and if they had'n't got that, to give her a pint o' lamp ile, or a pound o' hog's lard. I went down to see her the day afore she died. I gave her a dose of thorough-stalk tea, strong. I went to see her agin on Saturday, and dosed her agin. I thought if I could start her idees up a little, and kind o' jog natur, she might get along. She revived up a little, and I left her. I went down agin Sunday mornin', got there about half arter ten, and found her dead as a herrin'. I was mightily struck up. We skun her, and snaked her out upon the snow. I then cut her open, and examined her. She had what I call the overflow of the gall. I found a bushel basketful o' fox-grass hay, and nothin' else, in her intrils. I found a peck more in the manifold, all matted down and dried on. My neighbors use this kind o' hay. It will do for young critters that browse, but I never see any living critter touch it growin'. Even grasshoppers will run from it for life. I took some sperits down with me, Sunday mornin'. The cow having no further use for any, I took a dose myself!"

REVIEW OF THE MARKET.

PRICES CURRENT IN NEW YORK, MARCH 15, 1848.

ASHES, Pots,.....per 100 lbs.	\$5 88	to	\$6 00
Pearls,.....do.	8 00	"	8 06
BALE ROPE,.....lb.	6	"	8
BARK, Quercitron,.....ton,	35 00	"	38 00
BEANS, White,.....bush.	75	"	1 38
BEEHWAX, Am. Yellow,.....lb.	22	"	25
BOLT ROPE,.....do.	11	"	12½
BONES, ground,.....bush.	45	"	55
BRISTLES, American,.....lb.	25	"	65
BUTTER, Table,.....do.	15	"	25
Shipping,.....do.	9	"	15
CANDLES, Mould, Tallow,.....do.	12	"	14
Spermi,.....do.	25	"	38
Stearic,.....do.	20	"	25
CHEESE,.....do.	5	"	10
COAL, Anthracite,.....2000 lbs.	5 00	"	6 00
CORDAGE, American,.....lb.	11	"	13
COTTON,.....do.	6	"	10
COTTON BAGGING, Amer. hemp,....yard,	15	"	16
FEATHERS,.....lb.	30	"	40
FLAX, American,.....do.	7½	"	9
FLOUR, Northern and Western,.....bbl.	6 31	"	6 62
Fancy,.....do.	6 50	"	7 00
Southern,.....do.	6 25	"	6 50
Richmond City Mills,.....do.	7 44	"	7 50
Buckwheat,.....do.	—	"	—
Rye,.....do.	3 88	"	4 00
GRAIN—Wheat, Western,.....bush.	1 35	"	1 50
Southern,.....do.	1 25	"	1 40
Rye,.....do.	84	"	86
Corn, Northern,.....do.	54	"	58
Southern,.....do.	50	"	56
Barley,.....do.	78	"	85
Oats, Northern,.....do.	48	"	50
Southern,.....do.	40	"	45
GUANO,.....do.	2 50	"	3 00
HAY, in bales,.....100 lbs.	60	"	65
HEMP, Russia, clean,.....ton.	225 00	"	235 00
American, water-rotted,.....do.	160 00	"	220 00
American, dew-rotted,.....do.	140 00	"	200 00
HIDES, Dry Southern,.....do.	7	"	9
HOPS,.....lb.	5	"	8
HORNS,.....100.	2 00	"	10 00
LEAD, pig,.....do.	4 25	"	4 50
Sheet and bar,.....lb.	4½	"	5½
MEAL, Corn,.....bbl.	2 44	"	2 75
Corn,.....hhd.	14 50	"	15 00
MOLASSES, New Orleans,.....gal.	25	"	27
MUSTARD, American,.....lb.	16	"	31
NAVAL STORES—Tar,.....bbl.	1 75	"	2 00
Pitch,.....do.	81	"	1 00
Rosin,.....do.	70	"	80
Turpentine,.....do.	2 88	"	3 12
Spirits Turpentine, Southern,....gal.	39	"	43
OIL, Linseed, American,.....do.	63	"	66
Castor,.....do.	1 20	"	1 25
Lard,.....do.	80	"	85
OIL CAKE,.....100 lbs.	1 25	"	1 50
PEAS, Field,.....bush.	1 00	"	1 50
PLASTER OF PARIS,.....ton.	2 25	"	3 00
Ground, in bbls.,.....of 300 lbs.	1 12	"	1 25
PROVISIONS—Beef, Mess,.....bbl.	8 25	"	12 00
Prime,.....do.	5 25	"	7 50
Smoked,.....lb.	7	"	11
Rounds, in pickle,.....do.	5	"	7
Pork, Mess,.....bbl.	9 75	"	12 00
Prime,.....do.	6 50	"	9 00
Lard,.....lb.	7	"	9
Bacon sides, Smoked,.....do.	6	"	8
In pickle,.....do.	5	"	7
Hams, Smoked,.....do.	8	"	13
Pickled,.....do.	6	"	10
Shoulders, Smoked,.....do.	6	"	9
Pickled,.....do.	5	"	7
RICE,.....100 lbs.	3 00	"	4 00
SALT,.....sack,	1 45	"	1 55
Common,.....bush.	20	"	35
SEEDS—Clover,.....lb.	5	"	8
Timothy,.....bush.	1 75	"	3 50
Flax, clean,.....do.	1 50	"	1 55
rough,.....do.	1 40	"	1 45
SODA, Ash, cont'g 80 per cent. soda,... lb.	3	"	3
Sulphate Soda, ground,.....do.	1	"	—
SUGAR, New Orleans,.....do.	4	"	7
SUMAC, American,.....ton,	35 00	"	37 00
TALLOW,.....lb.	9	"	10
TOBACCO,.....do.	2½	"	8
WHISKEY, American,.....gal.	22	"	24
WOOLS, Saxony,.....lb.	35	"	60
Merino,.....do.	30	"	35
Half blood,.....do.	20	"	25
Common do,.....do.	18	"	20

REMARKS.—Flour and Cotton have advanced slightly since our last; while Corn, Hay, and Provisions have somewhat receded. The market is rather inactive.

Money continues difficult to be obtained at legal interest, except on first class city paper.

The Weather is fine, but cold for the season. Considerable Wheat has been winter killed the past season; it is too early as yet, however, to speak of the prospects of this crop.

TO CORRESPONDENTS.—Communications have been received from H. Cooke, E. S., R. L. Allen, J. McKinstry, F. R. S., Sergeant Teltrue, H. D., Solon Robinson, P., John Cooper, and J. S. Peacocke.

E. W. A., of Panama, N. Y.—The plant you inquire about, is what is called silk grass, or milk weed (*Asclepias sericea*), and may be destroyed by pulling it up by the roots. As its root endures in the ground for several years, no advantage will be derived from cutting off the tops except in preventing others from growing from seeds. The other information you ask, we cannot conveniently answer.

Diseases of Cattle.—F. of Fairfax, Va.—The symptoms which you describe of the ox you lost are not sufficiently definite for us to know of what disease he died. What you say is true—one grand deficiency in our agricultural writers, is, in not treating more at length on the diseases of animals. Those who are familiar with the symptoms during the various stages of a disease, might so describe them that its nature might be known and a remedy seasonably applied.

ACKNOWLEDGMENTS.—The Annual Report of the Buffalo Horticultural Society for the year 1847; with the Address of L. F. Allen, delivered before said Society in September last.

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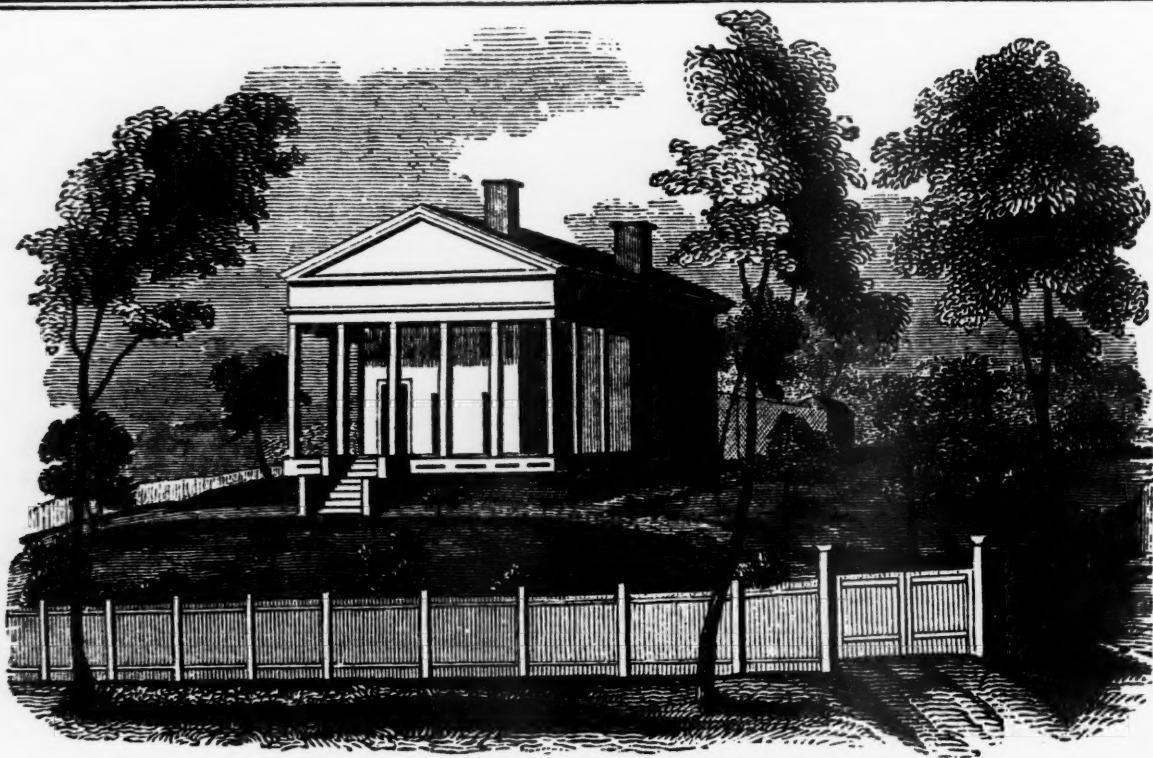
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Also an extensive assortment of valuable *Agricultural Seeds*, among which is Skirving's New and Improved Ruta Baga, for which has been awarded several premiums, by the Royal Agricultural Society of England, \$1.50 per lb. Dickson's Improved Ruta Baga \$1.25 per lb. Best Stock Mangel Wurzel—Silesia Sugar Beet—Belgium White Field Carrot—Spring Tares or Vetches, a valuable and nutritious soiling feed for horses and cows. Also White Lupins, for soiling—Italian (annual) and Paçey's Perennial Ray Grass—Sweet Vernal Grass—Herds and Blue Grass—Fine Mixed English Lawn Grass—50 cwt. White Honey-suckle Dutch Clover—Lucern or French Clover—and clean Potato Seed, 25 cents per package—Buckthorn Seed—Maclura or Osage Orange—and Honey Locust, or Gleditschia, for Hedging—the last forming an impenetrable fence. Yellow Ship Locust—Yellow and Scarlet Trefoil, with everything new and good, procurable in both hemispheres, whether for the Field, Garden, or Parterre.

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April, 1848.

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Williston, Vt., Jan. 17th, 1848.

THOS. H. CANFIELD,
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February 1st, 1848.

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February 1st, 1848.

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